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ALVERSTOCK, HAMPSHIRE.



Keywords: child sexual abuse; disclosure; social support; coping strategies

Obituary

IN THIS issue the JOURNAL OF THE ROYAL NAVAL MEDICAL SERVICE has the honour and privilege to publish an article by Sir H. D. Gillies C.B.E. F.R.C.S. Consultant in Plastic Surgery to the Royal Navy and who has been described by persons in authority as the Founder and Father of Plastic Surgery in Great Britain.

The Editors find it hard adequately to express their thanks to Sir Harold for the trouble he has taken on behalf of the Journal. In the same way the Royal Navy itself would find it willingly impossible adequately to express to Sir Harold the gratitude of the Service for the multitude of surgical honours which he has conferred upon the many mutilated sailors and ratings who have had the good fortune to come under his skilful and always generous care.

To persuade Sir Harold to write an article for us was relatively easy. Any difficulty which existed was merely concerned with the scarcity of time in the life of a busy man. In fact the only time available to the author was unfortunately for us but unfortunately for him during a short period of convalescence following an operation which he was forced to undergo.

On the other hand to persuade Sir Harold to tell us something about himself as a person proved to be a very difficult task indeed. In this case the obstacle which we had to overcome was concerned not with lack of time but with that natural reserve and modesty which is so frequently found to be associated with the mental make-up of really great men. However we are happy to have been able to overcome Sir Harold's reticence, and he has graciously permitted us to give certain details of his life and background which themselves make fascinating reading.

Harold Delf Gillies was born in Dunedin, New Zealand, on 17th June 1882 though when giving us this information Sir Harold himself queried whether the date might not have been 1782!

His father was a land and estate agent and a Member of the New Zealand Parliament. He was also an amateur astronomer of note.

Sir Harold's mother was descended from a famous family the Streets of Berkeley St. Guildford. Knowing the surgeon both clinical and administrative which her son has frequently been called upon to display in his active professional life, we are not surprised to learn that his mother's family was mentioned in the Domesday Book as having been responsible for the death of a highwayman!

Neither are we surprised to learn, in the light of that deep artistic approach which Sir Harold has always maintained on his particular branch of surgery, that his great uncle was followed later the famous landscape painter. The fact that the same great uncle should also have achieved fame as a writer of scientific physics for children fits in with that mysterious sense of humour which has become such a charming characteristic of the famous great nephew.

Harold Collins found life a bore for weeks on end as a child, but eventually neglected it for his two other loves, which were golf and cricket. Nevertheless, his affection for the cricket was by no means dead, and even in the case of a number of other distinguished men, he took up cricket at the age of 58, and achieved some success and a great deal of personal delight.

Sir Harold was educated at Wingham College at Cambridge and St Bartholomew's Hospital. He qualified in Medicine in 1908 and became an F.R.C.S. (England) in 1910.

His early professional career was in Otolaryngology, and from 1912 to 1915 he was an assistant to Sir Thomas Hare.

In 1915 he joined the R.A.M.C. and served in France for nearly the whole of that year. He found himself employed on general surgical duties at the Base, but was not altogether happy in the type of work he was given. His hope was at last to go to the forward area, or to find some form of surgery which he believed would be more useful and interesting.

At about this time a great gilling found of Collins, who had done German conversion, told him something of the work, which was being done by German surgeons. This found also gave him a hint which intrigued him. He also heard of the plastic work which was then being performed by the French Surgeon Mouton, and he resolved to see something of this for himself.

In June 1915, he went to Paris on leave. He met Mouton who demonstrated to him an operation for the removal of cancer of the face followed by plastic repair. In Sir Harold's own words "It so thrilled me that I fell in love there and then."

When Collins returned to his hospital at Wingham, he told his "Chief," Sir Anthony Reilly and Sir John Ross Bradford, about his impressions and intentions. This resulted in his first opportunity and at the end of 1915 he was sent back to England to open a Unit at Aldershot for the repair of facial injuries resulting from trench warfare. Collins wasted no time, and performed his first operation at the Unit in February 1916.

A year later this Unit moved from Aldershot to the Queen's Hospital at Sidcup, where it rapidly expanded to become the largest and most fruitful centre of its kind in the world.

During the Battle of the Somme, some 2,000 patients were sent to Collins at Sidcup. This was the mere beginning of a flood which was to follow, and by the end of the First World War he had dealt with 15,000 patients.

It was at this time, under its able leader that plastic surgery gained that international importance which, to this day, it has never lost. By then Collins had become associated with Sir John Robert Fry, William Rouley,

Newlands, Pickrell, Chubb, Seaton, the Hon. and the American (Mr. Ivy, Perry Smith and Karpman). Collier's own achievement during this period is an record in his classic work, "Plastic Surgery of the Face" published in 1929.

Between the two World Wars, Collier set about transferring the lessons of war injury into solving the problems of civilian reparative surgery and he extended the subject far beyond the restricted field of facial reconstruction with which he had begun. Nevertheless as ever administrative developments could always to lag behind professional advances and it was not until the year 1939 that Sir Bartholomew's suggested Collier the distinction of formal recognition as Plastic Surgeon, and then he was allocated no more than 5 beds.

However, as is well known, the history of plastic surgery was still only in its infancy and, with the onset of the Second World War, Units were become necessary all over the country to cope with a new flood of casualties. For this organization Collier was responsible and his own personal Unit in Rushmore House, Weymouth, has become the Mecca for Plastic Surgeons the world over.

Sir Harold first became connected with the Royal Navy during the First World War, when many naval sons, especially here after the Battle of Jutland, passed through his hands. He has maintained this connection ever since, and he was officially appointed as Consultant in Plastic Surgery to the Royal Navy on 1st July 1949.

Sir Harold's work for the Navy has been a model of devotion to duty and personal sacrifice to the needs of others. That is not all, however, we also owe to him our deepest gratitude for the training in the subject which he has extended to so many naval surgeons.

As would be expected, in the course of years, hundreds of all descriptions have been bestowed upon an unusual man. As a Major R.A.M.C. in the First World War, he was twice mentioned in despatches and appointed a C.B.E. (Military). Today he is an Honorary Knight in the R.A.M.C.

In 1949 he was created a Knight Bachelor.

In the early twenties he became Consulting Plastic Surgeon to the R.A.F. being succeeded by Sir Archibald McIndoe in 1932. He has also acted as Consulting Advisor to the Ministry of Health and the Department of Health for Scotland.

As would be expected, the founder of a separate surgical school, international in character, inevitably became the recipient of honours and awards from other Nations besides his own.

In 1923 the premature explosion of a phosphorus bomb on the Royal Danish Naval Ship "Gylden" caused 60 severe cases of phosphorus burns. Sir Harold Collier operated on these cases in Copenhagen, and later, over a period of some two years, they were sent in England for further plastic repair. For these services Sir Harold became a Commander of the Order of Dannebrog.

He became an Honorary Fellow of the Australian College of Surgeons in 1944. In 1950 he was elected an Honorary Fellow of the Royal Australasian College of Surgeons.

As a reward for his valuable training of Norwegian Surgeons in plastic surgery during the Second World War Sir Harold was made a Commander of the Order of St. Olav.

In 1946 he was elected as the first President of the British Association of Plastic Surgery, the founding of which he would regard as the supreme achievement of his career.

In closing this account of some parts of the life of our distinguished friend and colleague we feel it fitting to reveal his personal, almost inconsequential attitude towards his fame and the honours which he has so richly deserved. The attitude which is so typical of the greatness of the man is perhaps best displayed in his own words when compelled to give us details about himself—
—but it will



Article

PLASTIC SURGERY IN NAVAL CASES

by

Mr HAROLD GILLIES, C.F.E.

Plastic surgery owes its development as a modern specialty largely to the needs of war. Its principles and techniques were learned by necessity from the problems of repair presented by thousands of Servicemen in the two World Wars. Indeed, the first tube pedicle repair was performed on an Able Seaman severely burned during the Battle of Jutland in May, 1916 (figs. 1 and 2).

The experience then gained has accelerated the development of plastic surgery in its application to a wide range of conditions met with in post-war civilian practice, and the training of a considerable number of plastic surgeons during and after World War II has eventually led to the establishment of plastic surgery centers on a regional basis throughout the United Kingdom.

Art education of civilians has brought these special centers within range of Service units overseas, as may be witnessed by the recent admission to hospital in the South of England of a Serviceman severely wounded in an accidental grenade explosion. He was flown to this country by "Coastal" and transferred to a waiting helicopter which landed him on the lawn outside the hospital five and a half hours after leaving Cyprus.

Some of the commonest conditions within the scope of the plastic surgeon may be listed in three main categories as follows:

Trauma (immediate and delayed injury)

- Facial injuries, including damage to the bony skeleton
- Soft tissue injuries of the limbs, including open compound fractures
- Hand injuries
- Burns

Congenital

- Cleft lips and palates
- Excessive nares
- Hypoplasia
- Stenodactyly
- Deformities of the external ear
- Nasal abnormalities
- Minimally hyperplasia

Diagnosis

- Neoplasms of the face and jaw
- Lymphadenoma
- Dupuytren's contracture

Under previous conditions patients referred from the Royal Navy for plastic treatment may be found in all three of these groups. 43 naval patients admitted to hospital within the last five years are grouped on the following table:

Naval Patients Admitted to Plastic and Jaw Unit, Southampton,
1932-1937

Source 30	Compound 7	Source 5
Fractured nose 12	Cleft, lip and/or palate 2	Facial hemiparesis 1
Facial injuries 7		Dupuytren's contracture 1
Limb 2	Fractured nose 2	Wrist 1
Ear 2	Hypertrophic 1	Scar contracture 1
General 1	Stomal deformities 1	

Total Number 43

It is not proposed to discuss in detail the principles or techniques of plastic surgery, but the following cases are described as they cover a wide part of the field.

A free skin graft is often used in severe initial laceration; a more detailed flap repair being carried out later when local bruising or possible infection have subsided and the patient's general condition improved.

A Boy Seaman, aged 17, was injured in an accidental explosion aboard an aircraft carrier on 22nd October, 1936, resulting in multiple fragmentation wounds of face and head, upper limbs and to a lower extremity, the abdomen and thighs. There was total loss of sight. After initial treatment at R.N. Hospital, Haslar, he was transferred to Birmingham with an area of skin loss of the forehead and scalp, and the lower table of the skull exposed (Fig. 3).

At the first operation skin grafts were laid over the area, some of the dead bone being removed, and the grafts being applied directly in place to bleeding bone. Two months later the poor epithelium of the grafted area was excised and the scalp rotated forwards to cover the defect (Fig. 4). Although the forehead was brought rather low on the affected side the result was not unsatisfactory. In spite of his disabilities, this boy has made very full use of the expert education given him at St. Dunstons, and is regarded as having a very promising future.

A 26-year old Able Seaman was involved in a car accident and, having other injuries, lost almost the whole of his left ear. The loss of this feature produces a very unbalanced effect, and although provision of good appearance can be obtained this difference is not always reliable and they are on any view psychologically unsatisfying to the patient.

The first stage of his repair was carried out at Haslar, when a tubed pedicle was raised over the left cheek and a suitably curved piece of rib cartilage was

carried under the skin in the region of the missing ear (fig. 24). Further stages were performed at Basingstoke when the pedicle, after being lengthened, was transferred in stages to provide the ear and to clothe the posterior surface of the implanted cartilage which had now been swung forwards. Although some final trimming remained to be done the ear is now five months after the commencement of the reconstruction (fig. 40).

As may be noted from the table above, fully one-third of the nasal cases are referred to us for nasal deformities. The majority of these are due to old injuries, but a few are congenital in origin. Although there is frequently severe airway obstruction, it may not be generally realized how common many of these patients are of their misshapen noses. Such a patient may develop a severe complex about his appearance and his general behaviour and identity may well be influenced by this. The short time spent in hospital correcting these deformities may often be very well spent.

A Telegraphist, aged 20, (figs. 7 and 8) sustained a nasal fracture in child hood, and although S.M.R. had repaired his airway, the deformity remained a constant one.

At operation the nasal bones were refashioned and displaced forwards to restore the upper part of the nose, and a bone graft from the right iliac crest was inserted to restore the bridge line. Further bone chips were inserted in the columella down to the nasal spine, to maintain the tip (figs. 9 and 10).

For a case of facial burns (fig. 11) we go back to the war and those sustained by a Landing Sergeant, aged 26, when an ammunition ship exploded at Algiers in August, 1947.

Initial treatment by Major Clarkson included a tarsorrhaphy to preserve the sight in his right eye, and some four months later he arrived at Basingstoke with contracted facial scars. Subsequent treatment was brilliantly carried out by Mr. James Carlsbam. A thick dermatomic graft was used to repair the right cheek, and a thin Thiersch graft to resurface the contracted upper eyelid (fig. 12). The tarsometal right eyelid is a portion of hard-bearing scalp carried down on a narrow subcutaneous pedicle containing the trigeminal nerve, the pedicle being tunnelled under the skin to bring the eyelid out in its correct position.

An example of a congenital deformity is the case of a Supply Assistant, aged 20, who had the misfortune to be born with a double lip. This was repaired in infancy, but alignment of the lip border had not been very satisfactorily achieved and there were marked notches at the junction of the lateral lip elements with the philtrum (fig. 13). No attempt had been made to spare the muscles. At operation the old scars were excised and the lip separated into its layers of skin, muscle and mucosa. After resection of the muscle layer small skin flaps were rotated across the mid line to give a pleasing result (fig. 14).

If skin has been lost from the leg, and bone or tendon are exposed, or if the arm is weight-bearing or subject to friction, then repair by free graft is inevitable and a flap must be designed to cover the defect. A cross-leg

flap is the first chosen, provided the defect is not too large, and the opposite cuff is usually the last resort device. This almost standardized procedure has proved its worth over the years, and is particularly valuable to the orthopedic surgeon as a preliminary to the insertion of a bone graft.

A 20-year-old rating was involved in a car accident on 22nd March, 1935, in which he sustained a fractured fifth cervical vertebra, and also a deep laceration of the medial aspect of the dorsum of his right foot (fig. 14). This was covered and grafted at this time, but with little success owing to involvement of bone and extensive infection. The dead bone was later removed and the wound allowed to granulate.

He was admitted to Rockdown House on 6th August, 1935 and two days later with the assistance of Surgeon-Commander Page a covering flap was moved from the left calf (fig. 16). The flap was debrided and inset on 29th August, 1935, following which healing proceeded rapidly (fig. 17).

He was discharged from hospital 18th September, 1935.

A variation is shown in the case of a Marine, who suffered from laceration of both feet in the Korean campaign. He had lost all toes of the right foot and presented an ulcerated area adherent to the margins of the metatarsals (fig. 18). It was hoped to rotate a local flap from the medial side of the foot, and as a preliminary operation such a flap was partly raised and then replaced as a "slab" procedure aimed at improving the blood supply through the base of the flap. However the circulation, presumably as a result of the foot-lacer, proved insufficient and the alternative plan was adopted whereby a flap was raised from the opposite leg and attached to the foot after removal of the scar and some underlying affected bone (fig. 19). Three weeks later the base of the flap was debrided and healing proceeded satisfactorily (fig. 20).

A Royal Marine, aged 20 sustained a deep shell wound of the left calf in Port Land at the time of the Suez incident. After initial debridement and partial suture, he developed gas gangrene, necessitating wide excision of the wound and the area last skin-grafted. He was admitted to the Plastic Unit four months later with deep staining adherent to the underlying calf muscles (fig. 21).

At operation a flap measuring 5 in. x 4 in. was raised from the opposite calf and sutured to the defect after all necrosis had been removed (fig. 22). Sections of tissue from different parts of the wound were sent for special investigation, but did not reveal the presence of gas gangrene organisms or surviving spores. As the flap was rather large, the base was divided halfway across three weeks later, under local anesthesia, and the following week the division was completed (fig. 23).

Surgeons engaged in the repair of hand injuries have been quick to realize the value of plastic principles and the importance of preserving available skin cover to preserve all possible function. These flaps for finger tip losses, amputations of chest or abdominal flaps for larger defects, are being employed on an increasing scale to restore the length of damaged digits. Actual reconstruction of missing digits, tentatively carried out in the war years, is

slowly becoming a more practical procedure, particularly in the case of the thumb, the loss of which makes the hand almost useless. A tube pedicle with anastomosed bone graft will produce quite a serviceable opposition post, although somewhat lacking in accurate sensation, and perforation of the index finger will give a more efficiently functioning thumb with a good nerve supply.

Transplantation of the great toe has proved of value in selected cases.

A method of lengthening a thumb stump is illustrated in the following case, although the full procedure of lengthening by a bone graft was not necessary in this instance.

A Sergeant in the Royal Marines had his left thumb crushed by a collapsing wall in Malta, resulting in some loss of bone and swelling skin. Healing was slow until sequestrectomy was performed and a skin graft applied to a granulating area. The overcast shortened thumb (fig. 16) was covered densely with adjacent sensitive skin flaps, and there appeared to be no elements of the fractured proximal phalanx. At operation new skin cover was provided by a "crotchet-bar" flap outlined by an incision around the base of the thumb stump, the skin distal to this being freed by wide undermining to allow it to slide down over the tip of the thumb. A skin graft was applied to the resulting secondary defect (figs. 15 and 16). The patient now has a short thumb but with a normal range of movement at the metacarpophalangeal joint. The tip is covered with good quality skin and the approximate degree of sensory interference is present.

Injuries of the paratenon, while not common, present a difficult and interesting problem to the surgeon.

An E.N.A., aged 32, was serving aboard an aircraft carrier in 1946, when he suffered avulsion of the proximal paratenon by a revolving shaft. There was total loss of the shaft of the joint and complete avulsion of the scutum, but both muscles and cords were intact.

At emergency operations the detached tendons were tucked under surrounding skin and a representative anastomosis performed.

The psychological effects of this appalling injury are easily imagined, and six months later he was admitted to the Plastic Unit for reconstruction of the joint (fig. 17).

The details of this type of repair are found elsewhere (B.J.P.S., April, 1950), but, briefly, an abdominal tube pedicle was fashioned containing within it a previously prepared narrow skin-lined tube. One end was then brought down to the patient's elbow where the more tube was joined to the stump of the cord, and the outer pedicle skin sutured to the surrounding skin. The attached abdominal end was later divided, and further trimming procedures carried out at intervals.

The reconstruction was not without complications, mainly caused around the sensory flap, but things eventually settled down and he was able to produce a satisfactory thumb (fig. 18).

Unfortunately, some six years later, he sustained a hot water bottle burn

of the still partially unexcised end of his nose began, leading to sleeping with some shortening and also partial obstruction of the nostrils.

He was readmitted to Brompton, and a new extension of the graft by means of an abdominal tube pedicle as before was applied at (Figs 28 and 29). A urethrogram was performed later (Fig. 31), and showed a very satisfactory channel.

A 12-year-old Cook was referred with lymphadenoma of the penis, presumed to be due to a local lymphatic blockage following an infected chancre (Fig. 32).

Localized lymphatic blockage in the penis may respond to the introduction of a skin flap bearing new lymphatics to restore the flow, but it was considered that such a flap would be too thick for application to the penis.

Operation was performed on 7th September, 1933, by Mr. Whitworth, who excised the whole area of thickened skin and subcutaneous tissue and sutured into place two sheets of median thickness dermal skin (Fig. 33). Care was taken to cut and apply the grafts in the line of their lymphatic drainage so as to improve the drainage of lymphatic substances. The grafts took satisfactorily and healing was rapid and uncomplicated (Fig. 34).

ACKNOWLEDGMENT

In preparing this account for the *JOURNAL OF THE ROYAL NAVAL MEDICAL SERVICE*, my grateful thanks are due to Mr. A. J. Grant, F.R.C.S., who has consistently been associated with me in the treatment of these cases, and upon whose shoulders has fallen the burden of collecting and collating the material. Furthermore, he has had the most able assistance of these cases in his hands and frequently has undertaken the operations themselves.



Fig. 1



Fig. 1



Fig. 1



Fig. 1



Man's Neck



Maurice Bergman



Fig. 7



FIG. 2







FIG. 31



FIG. 17



Fig. 11



FIG. 10



Fig. 17



FIG. 18



FIG. 17



FIG. 11



Black Cat



FIG. 2.



Fig. 21



FIG. 10





FIG. 24





FIG. 2



FIG. 27



FIG. 25



Fig. 20



FIG. 20

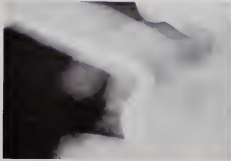




FIG. 1.



Fig. 11



FIG. 74

A SYMPOSIUM ON SYMPOSIUM: HAY LAYERS. Edited by Sir David Watkins. Pp. 2, 217. £12.00. D.S.O. P 24 C 5. Farnham, Surrey, UK: Ash & Co with 140 illustrations and 11 tables of values. Second John Wright and Sons, Glouc. 15c 4d.

Then back, concentrate on high standard and use a bank for speech reference, to *house* and *Contingency* are recommended. The diagrams on page 10 are, first and second, and from them, a list of references can be obtained in a short time. The figure on page 11 showing such references of the head eye is not so good. The system shows on-line marking in blue, each, useful.

There is usually little to recommend him as a fish, but the capture is interesting, and the brown midline diagnosis and the lateral white stripe will be enlarged somewhat by the fish. Studies of patients who present themselves with low back pain and symptoms referable to nerves and dermatomes and myeloma.

A list of clinically pathological investigations giving normal values and abnormality found in pathological conditions would also be of value.

It is contended that this book is of great value not only to the few seriously-minded doctors who may find himself faced with surgical problems, but also to the majority for quick reference and it is gratifying to know that we are working in the field covered in a book of considerable size.

Dr. C. H. MORTAL, M.D., F.R.C.P., Professor, Institute of Medical Physiology at the University of Oslo, Blindern 1406, P.O. Box 440, with 171 telephone, London H. A. Lane and Company, Limited, Page 23 set.

The last data set which has reached an almost mature or thirty-seven years, is a sufficient testimony of its history. It contains probably the most comprehensive record of the observed sunspot found on the F. P. N. as it is more complete than those seen upon sunspots. The research has produced an entire volume for many years and has found a considerable number of sunspots, on other sun, but these, however, are not.

3. A. R. shows students can be persuasive. The author's addition to Linn's commentary may provide some of the younger readers with a very potent (if not one of the most potent) statement: "The teacher can electroencephalography to check out their brains, the real measurement of their subjects as students' perceptions and perceptions and no one else is going to do the students who believe words to make a strong case."

Only very experienced layers of users know the fact that the patient is not coming in for follow-up treatment.

Quinn and Quinn. No. 10. Map. Half Linen. Translated from the German by John E. Hoffman. No. 7. Boston. John Wright and Sons. Price 75. 00.

The book is a discussion on the nature of culture as a component of culture as the focus of a study of the literature. It covers the period from 1900 to 1950 and is intended as a text for students of the literature.

The author examines these aspects with especial reference to their dependence on drug-behaviour interaction on health and social settings. We are reminded that the unbridled use of caffeine-containing foods and drinks, including breakfast coffee and tea during rest periods and sleeping, frequently becomes abuse. In these practices besides the desired stimulant effect, severely negative behaviour effects.

The various debates, with the subjects of coffee in various technological steps, reported from Cardiovascular Disease to Glaucoma will be of especial interest to the physician and dentist. But the comprehensive nature of this review makes it of interest to all students of the profession.

J. W. S.

HISTORY AND THE NAVY 1800-1900 Volumes I: 1801-1844. By J. D. Reed. First Edition. Pp. xv + 331 with photographs. Edinburgh and London: E. & S. Livingston Limited. Price 40s. net. Home postage 1s. 5d.

Volume I of the late John Reed's history of Medicine and the Navy covers the period from 1801 to 1844 in other words it travels from the beginning of the Commonwealth to Elizabethan and ends with the Naval Medical Services of the First World War.

The volume has been presented chronologically with the occasional attention to historical relevance which we have come to associate with all Reed's work. There is nothing concerning of contemporary medicine in the way of personal opinion and no word appears without the full weight of evidence that suffices to support it.

The result is a publication which, though it may prove a little tedious and monotonous to the general reader, contains but so it is a valuable work of reference which the professional historian would regard with the greatest esteem.

If there can be found with this volume, and there is, an *idea* John Reed may be certain that he would have been the last person to claim that his work was finished, as perhaps here in the chronicle, not just which the author has adopted. Once committed to such a course it follows, inevitably that much appears which is concerned with politics, companies and the like which are, in that concerned sense, with the general history of the period than with the progress of medicine in the Navy of that time.

From a purely naval student, standpoint a world perhaps have been better to have abandoned the chronological approach (and attempt to have presented) the facts of such 'unit' and obvious materials in various directed in such direction, as typical clinical subject, generally and in particular medical subjects upon the contemporary.

Nevertheless, this volume is one which, like a fairly unexplored historical year, and a most strong to a useful and final hand work in the life of an engaged reader.

It is good to know that the work upon which the late John Reed embarked with such success is not, as some might think, it will be completed in the future under the guidance sponsorship of the Williams Foundation.

J. L. S. C.

THE NURSING AND MANAGEMENT OF ACUTE DISEASE. By D. S. Wilkinson. M.D. M.B.C.P. First Edition. Pp. 224. 26 photographs and 12 line drawings. London: Pitman and Pitman Limited. Price 15s. 6d. net.

This small volume, the author explains in his preface as not intended as 'just another deceptively large book', has rather a surprising number of illustrations to be used with the more complex reference books already available. It has been written especially for those hard who of us are not in the number who were making, during the war years, through the medical curriculum to learn much of anything at all about the details of management of acute disease, that are commonly considered doctors and nursing staff in their daily routine practice.

The book is divided into six sections: (1) The features of the skin in health and disease (24 pp.); (2) General principles of management (44 pp.); (3) The management of various

current diseases (10 pp.) (4) Special problems involving drug treatment, symptoms resembling infectious fever (scarlet fever), skin problems in infancy and old (28 pp.) (5) Dermatological techniques, giving precise instructions regarding local application particularly the use of carbon dioxide snow (20 pp.) (6) A series of questions including a short model laboratory (30 pp.).

This is a completely new approach to the treatment of a disease and the reviewer feels that its clinical measurement is too strongly reserved to those who still feel that there are only three types of skin disease, one which needs Whistell's ointment, one which gets better with or without salicylic lotion and one which will get worse whatever is applied. For those whose experience has stimulated a real desire to help their own patients the book should prove a first class investment.

R. W. S. S.

An Introduction to General Practice. By Denis Crabbell, M.B., Ch.B., D.O.M. B.C.O.H. Foreword by Sir Neville Martin F.R.C. D.M. M.C. F.R.C.S. Second Edition. Pp. xvi+295. London: H. K. Lewis and Company Limited. Price £7.5s. 50s. net.

Denis Crabbell's "Introduction to General Practice," in the form of its second edition, brings to the average doctor that sensible version of everyday guidance which was originally presented in the first edition, in 1953.

The whole manner of the medicine mentioned in medical literature is that the bulk of medical practice consists of common sense clinical dealing with common-sense patients in a common sense way. The chapter on heart disease is but one example of how a common sense may be made the subject of a medical approach. Other examples are the chapters on constipation and disorders of sexual life, which though short have probably never been better presented or briefed here.

The volume includes some notes upon risks to be observed in the National Health Service and a valuable series of short appendices of which the treatment of physical and mental development are not just as well as some valuable notes upon vaccination and immunisation.

It is interesting to note that a short chapter on medico-legal matters includes a page about "The Legal Aspects of Abortion."

It would be impossible to speak too highly of Dr. Crabbell's book and it is one which cannot fail to appeal to every British medical officer, or that, as British medical officer should be without it.

J. L. S. C.

Emergency Medicine. By Hamilton Bailey F.R.C.S.-Eng. F.R.C.S. F.R.S.E. Seventh Edition. Pp. 122. 15% discount a large number of copies. Blackwell Scientific Publications, London. Price 7s. 6d. (Postage 3s. 6d.).

This subject incidentally has grown to bulk with the years but despite the constant request and editions have enabled the work to continue to improve completely up to date, accurate and more readable presentation.

Mr. Hamilton Bailey's book is not then merely clearly arranged with his personality throughout, despite the fact that with the passing of years and the expansion of the work several contributors have been introduced.

The volume is supplied to all shops of The Medical Library—and many a young doctor at a time as detailed current text book, passed the day when the new editions was made.

Despite the increasing size of the work—surface have increased in size of the methods have allowed to permit and represent in a new edition.

Many of the illustrations will be familiar, making an already readable work even more so, and enlightening points in a glossary.

Chapter XIII "The Treatment of Wounds" is worthy of special commendation in

particular is a review in the Medical Journal of Nov. 1, 1910, *Annals of Surgery*. History has repeatedly demonstrated that the success of past wars in other languages or in different climes after the beginning of their own conflict and for that reason the chance is so important in keeping before our the principles in the little chapters of words. The knowledge is all too greatly forgotten in these days, when patients with relatively clean wounds are usually returned to hospital within a week of receiving an injury.

The book is a compendium of emergency surgery (including fractures) and is all written to be quick, popular.

In a world where specialization is leading to fragment knowledge it is a pleasure to find a work like this, emphasizing its purpose and example the essential unity of medicine.

Any book that has run through seven editions—five editions and six editions in Spanish since 1900—clearly must be not only of exceptional merit but meeting a continuing demand.

J. B. P.

LECTURE ON FRACTURES. By John Crawford Adams, M.D. London, F.R.C.S. Regional Consultant Orthopaedic Surgeon, St. Mary's Hospital, London and St. Vincent's Orthopaedic Hospital, Bristol. Second Edition. Pp. viii+288 with 157 figures. Edinburgh and London: E. & S. Livingston, Limited. Price 25s. 6d.

It comes at 12 o'clock that this book has its importance when "Lecture of Orthopaedics" has occupied the second Edition in less than two years after its first publication. The book is intended primarily for the medical student, for the practitioner who needs a knowledge of general practice rather than of specialized details, and for the physiotherapist. Written in detached, almost academic, by which the practitioner should accept and compare a foreign, the general principles of fracture treatment so that he may apply his talent intelligently in the intervals between visits to the fracture clinic, and so that he should know the complications that are liable to arise.

On first about the volume on the spine has been largely discussed. The number of pages has been slightly increased, but except the spine is increased by the discussion of additional disorders. The book is of a handy size, beautifully produced, and well illustrated. Thus, it has to grapple with the text, which is brief, concise and instructive. It is being written by one who is widely recognized as one of the foremost Consultant Orthopaedic Surgeons in the country.

I think that most medical orthopaedic surgeons would agree with the statements contained in the preface of these authors' contents in our printed, everything perhaps that were of it would say that it is scarcely new for a person suffering from extensive dislocation of the shoulder to believe that the shoulder was dislocated for three weeks following great injury. Not so the past week ago (young with a back was dead) then nothing more than a small degree of permanent impairment of shoulder movements follows unusual causes for this period. We would therefore recommend warning the case in the chest and the meaning of a collar "not call for three weeks, rather than" raising the limb or a sling for a few days," as suggested by the authors.

I think all of us, long gone, to agree, with the belief that the semi-recognized method of treating a dislocation of the acetabulum after make good by carefully drawing applied from the superior of the iliac crest, toward the distal end of the, head of the femur, as it is to be replaced in being reduced, and unnecessary cause of violence on and within adequate for a complete dislocation.

One figure calls for comment, namely that on page 146, about a 1/2 inch of a fracture of the medial humerus, with a screw. It is a pity that the Kerr shown by (figure) the metal instrument should be one in which is put a screw, for there is particularly near the subscapular.

This is the type of book which I have long felt would be a desirable addition to the medical library of the East. One of 80 or 100 pages about. At present there, there are not supplied with a book on fractures, largely I think because, a suitable volume has not been

Orthopaedic Subjects. During of President, within the requirements and it is sincerely hoped that the authorities will give the matter due consideration.

P D G P

Concurrence. By David R. Matthews, Associate Member The Royal Institute, Ashton Professor of Mathematics in Medicine The University of Pennsylvania. Pp. xiv+295. London: Chapman and Hall Limited. Price 5s. 6d. net.

The book is a textbook of the biochemistry of cholesterol and its metabolism, both in health and disease though it contains a substantial amount of up-to-date material. 500. The main reason for such a vast amount of information (about 1,000 references) lies of course in the intermingling of the metabolism and through it of its consequences—in the all-around secondary disease. The consequences of the intermingling are possible, some probable, and some certain, are, both right here in a most extensive manner, and it is to be said that anyone who consults the work will command an encyclopaedic knowledge of the subject.

That is, for the year. Next year, though on both of the subject, the knowledge will be partly out of date, and in the years it will be superseded by. Therefore, in the manner—the in progress—of a subject, it is to be said that, in regard to the usual question of which (the and how, much of them should be taken as regards to the subject, which have been so carefully elaborated by contemporary books—and which must get out of date in all. In short, there is no question of the subject, apart from the nature of the subject, which makes some people (the subject and some the subject) and no question of the past work—there is in the subject itself, which shows through various contributions, in addition through the use of various, certain parts of the book on which the subject is based in its content. Here are the right, the subject, in the case of the whole case, in doing the the most best that has been done in the case of the subject do.¹

But enough. The reviewer is to be said, in progress and. Nevertheless, he would like to say this to say to say, the subject for the best results in the biochemistry of cholesterol and the other have been written.

T S C

Treatment of Surgery. Edited by Guy Blackmore, M.D., M.Ch., F.R.C.S. and Ben L. Jones, M.D., M.B., F.R.C.S., M.R.C.P. with a Foreword by Sir Harold Gillies, M.B., F.R.C.S., F.R.C.S. London: Pp. xv+112 with numerous photographs, diagrams, and up-to-date references. 1951. Blackwell Scientific Publications. Pp. xv, 112. 5s.

The book is excellent in conception, execution and interest, and the reviewer has no doubt that it will rapidly become popular among medical students and surgeons among other works of its kind.

The authors have achieved the need for a good and well-written, compact, and in which the medical student may find, his subject, learning, at the same time they have achieved that today, on any or two-point system, can speak with authority in their of the subject of medical surgery.

Consequently the book is written in appropriate manner by authors who are, including the two editors, all are concerned in their own specialties and all are members of the staff of Guy's Hospital.

But that is not the whole story. Both a vast mass of information have been the medical student who, for example, has chosen to study, that he would equally be overwhelmed without useful guidance. This the present volume most helpfully gives. Each will not in itself go over as soon thoroughly, the style is clear and unobtrusive, the material is not too long by ways of explanation, treatment is clearly set out, and the whole is in fact, and quite up to date.

Chief of the Service

OBITUARY

Surgeon-Captain (R) H. G. BOPHTHRELL, O.B.E., M.B. (S.P.H. D.D.S.) Royal Navy. In his home as a great shock and much distress to his many friends. He died whilst on duty in the Service, in front of the wooden church of Chicheley (Sussex) (Sussex) at his home near Dorking, on Saturday, 24th December 1950. His family had been far from robust for some years, but he did not allow this condition to interfere in any way with the high standard of work which he consistently maintained throughout his life.

He was educated at Charterhouse, Gresham College, Cambridge and St. Thomas' Hospital, London. He qualified M.B., B.S., L.R.C.P., in 1916 and obtained the M.B., B.Ch., of Cambridge University in 1920. He took the D.P.H. of London University in 1923 and he also taught G.P. at his father's practice near Winchester prior to his entry into the Service in 1925.

His first and only hospital appointment was as Clinical Pathologist at the R.N. Hospital, Haslemere, from May 1926 to June 1928. This appointment he carried out with distinguished thoroughness and ability.

It was whilst serving in the Medical Department, Admiralty from 1928 to 1930 that his services as Industrial Hygiene became internationally recognized. He obtained the D.I.H. in 1930 and there is no doubt that he put Industrial Hygiene to the test as far as the Royal Navy is concerned. He attended the opportunities in the Service that arose as H.M. Dockyards, H.M. Aircraft Repair Yards and here had his hand to H.M. Ship Chandeliers. He fully appreciated the fact that Preventive Hygiene was essential to any progress of medicine and he was constantly endeavouring, on the basis of the existing, which was considerable, to put this knowledge down in all the details. He was one of the original members of the Royal Service and Factory Committee on Occupational Health, which consists of Service members from the three Fighting Services, and Civil Experts on various fields of health of Medicine.

He did good work as H.M. Deputy Chief, Hygiene and the Naval Base from 1930 to 1932 but his work was of outstanding value whilst holding the appointment of Senior Medical Officer H.M. Dockyard Portsmouth from October 1932 to October 1933. He represented the Medical Section of the Dockyard and was of the greatest help to the Medical Director General during that period when the Home Dockyard Republics were being formed and brought up to date. His personal initiative was dropped and modern views were introduced. Loyalty to the work of his personal experience in Industrial Hygiene.

He joined the Medical Department, Admiralty (in Assistant to M.D.C.) as Hygiene, Preventive Medicine and Industrial Hygiene in October 1933. During the 1933-34 Session of the British Group of the Society of Medical Officers of Health he was elected President of the Group. His Presidential address was a paper on Preventive Medicine in the Navy. This consisted of a historical account of the development of Preventive Medicine in the Navy during the past few years as up to the present day. It was written in his usual lucid and attractive prose, and of a quality made superior to that of the most Medical Officer. It was presented with vigour and was published in the Journals of the Society of Medical Officers of Health and of the Royal Naval Medical Service. He also wrote a reference book in 1937 on Industrial Health as a guide to Medical Officers. This

was officially appointed, and qualified for all Medical Offices. A new comprehensive, handbook for Medical and Dental Officers is being prepared and he wrote the section on Industrial Medicine and notes of the persons concerned with Hygiene and Preventive Medicine. He also gave lectures on Industrial Health to newly joined Medical Officers at the R.N. Medical School, Alexandria.

His responsibilities in Hygiene, Preventive Medicine and Industrial Medicine have been increasing during recent years, not only on the Navy, but also at the Naval Base of the Society of Medical Officers of Health, and as president of the "Navy Surgeon and Factory Committee on Occupational Health". He was also Naval Secretary of the Epidemiology Section of the Royal Society of Tropical and Hygiene in being on the Committee of the United Services Section of the R.N.M. His relations, however, did not stop there, and he gave a most interesting and interesting paper at 1933 on Malaria in Palestine, at the request of the Vice of the Parliement, during which he visited. This was greatly appreciated by all who attended the lecture. He also took an interest in Church affairs and was often very helpful and willing to meet wherever possible. He was certainly a possessor of the Christian Faith.

He was awarded the Orders of the Bath in 1942 and the Order of the Bath in 1943. Qualifications were a very considerable number and include Medical Officer. He was elected the very distinguished and the best of his class and much information was given. His judgment was that, and he was always friendly and pleasant. His efforts in 1942 led to the Service which he found, and for which he did distinguished work.

One cannot completely understand his work and his

Surgeon-Captain P. H. (BO) DEN, R.N. (Ret.) died on the 16th December 1944, in his 61st year. Born on the 15th May 1883, he qualified M.B., B.S. at Edinburgh University in 1910 (M.D. Edinburgh in 1915) and entered the Royal Navy as a Surgeon in 1913. Promoted Staff Surgeon in 1916 and Surgeon-Commander in 1927 (he was placed on the Retired List from the 1st January 1933) with the rank of Surgeon-Captain.

During World War I Surgeon-Captain Den served in H.M. Ships, Colleges and had qualified in H.M. Hospital and in R.N.A.S. No. 1 Auxiliary Wing.

While serving in H.M.S. Fleet he was present on the occasion of the birth of the first child of the Duke of Lancaster's Palace on the 25th August 1938.

In 1914 Surgeon-Captain Den was awarded the Order of the Bath (Military) by the President of the Surgeon-Regiment.

Surgeon-Captain J. P. M. CAMPBELL, R.N. (Ret.) died on the 15th October 1944, in his 61st year. Born on the 15th November 1883, he qualified M.B., B.S. at the University of Edinburgh in 1915 and entered the Royal Navy the same year. Promoted Surgeon, Lieutenant-Commander in 1920, Surgeon-Commander in 1927 and Surgeon-Captain in 1932, he was placed on the Retired List from the 15th December 1937.

During World War I Surgeon-Captain Campbell served in H.M. Ships, Hygiene, Command, Health, Japan, etc. He was also a member of the Royal Navy.

During World War II he served in R.N. Hospitals, Department in R.N. Hospital, Plymouth, R.N. Auxiliary Hospital, Surgeon-Quarry, and in H.M. Hospitals.

Surgeon-Captain Campbell was appointed as King's Honorary Physician in April 1944.

Surgeon-Commander D. P. CAMPBELL, R.N. (Ret.) died on the 14th October 1944, aged 61. Born on the 15th February 1877, he qualified M.B., B.S. at Glasgow L.S.C.P. London in 1901 and entered the Royal Navy as a Surgeon in 1903. Promoted Surgeon-Lieutenant-Commander in 1916 and Surgeon-Commander in 1921, he was placed on the Retired List on the 1st January 1933.

During World War I Surgeon-Commander Campbell served in H.M. Ships, Barb, Advertiser, Fleet and in Port of London.

Sergeant Captain M. T. MAILE, R.N. (Ret.) died on the 28th November 1959, at the age of 52. Born on the 24th October 1907, he qualified M.B.C.S. (England) in 1930 (D.F.H. England in 1931) and entered the Royal Naval Service as Sergeant in 1931. Promoted Sergeant Lieutenant-Commander in 1940 and Sergeant-Commander in 1941. He was placed on the Retired List (part) on the 26th December 1950, with the rank of Sergeant-Captain.

During World War I Sergeant Captain Maile served in H.M. Ships *Island* and *Stewart* and in Southampton Naval Base.

Sergeant Captain R. E. PERKINS, R.N. (Ret.) died on the 17th December 1959, at the age of 74. Born on the 14th July 1885, he qualified M.B.C.S. (England) & R.C.P. (London) in 1908 and entered the Royal Navy as a Surgeon Lieutenant in 1910. Promoted Surgeon Lieutenant-Commander in 1916 and Surgeon-Commander in 1923, he was placed on the Retired List on his own request on the 14th September 1940, with the rank of Surgeon-Captain.

During World War I Surgeon Captain Perkins served in H.M. Ships *London*, *gh*, *Plymouth* and *Hamble* and in R.N. Ships *Porpoise*.

Sergeon Captain A. C. BLAIR, R.N. (Ret.) died on the 25th December 1959, aged 67, born on the 12th March 1892, he qualified M.B., Ch.B. at the University of Edinburgh in 1915 and entered the Royal Navy as a Surgeon Lieutenant (the same year). Promoted Surgeon Lieutenant-Commander in 1928, Surgeon-Commander in 1929 and Surgeon-Captain in 1930, he was placed on the Retired List (part) on the 22nd January 1946, and re-designated Staff Medical Officer "A" on 24th December 1947.

During World War I Surgeon Captain Blair served in H.M.S. *Minerva* and in R.N. Hospitals *Devonport*.

During World War II he served in H.M.S. *Scimitar*, H.M.S. *Vik*, with R.N. Dock Quarters *Liverpool*, and in R.N. Auxiliary Hospital *East Angles*.

REVIEWS AND VIEWS

Commander of the Order of the British Empire

Sergeant Captain C. B. MATHIAS, R.N. (Ret.)

Officer of the Order of the British Empire

Surgeon-Commander A. F. M. REWIN, V.R.D., R.N.P.R. (Ret.)

RETIRED OFFICERS

D.F.M.—Surgeon Lieutenant-Commander G. Poller

D.F.H.—Surgeon Lieutenant J. M. Dixon

D.R.C.D.G.—Surgeon Lieutenant M. F. JAMES, D.E.R., R.N.M.S., A. M. Wilson

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To Surgeon-Captain—R. B. Alderson (11.12.59), J. Lees (11.12.59), C. J. P. Parsons (11.12.59), R. James (11.12.59).

To Surgeon Lieutenant-Commander—C. Medford (10.11.59), G. L. Wyle (11.12.59), F. M. Riemann (11.12.59).

To Surgeon Lieutenant-Commander (D)—K. B. Neffron (10.10.59).

The following professional references have been forwarded for publication in date 20th June, 1960:

To Surgeon-Captain—E. B. Bradbury, P. G. Rogers, J. W. Brinkworth.

To Surgeon-Commander—P. V. G. Dawson, G. Poller, P. D. A. Garbutt, J. S. Archer.

To Surgeon-Commander (D)—R. S. High.

ROYAL AUSTRALIAN NAVY

To Surgeon-Captain—R. M. Clapham.

To Surgeon-Commander—S. F. H. Houghton.

ROYAL NEW ZEALAND NAVY

To Tangier (10/11/28)—A. C. Flett

ROYAL CANADIAN NAVY

To Tangier (10/11/28)—G. M. Chapman (11/28/28) W. J. Ellis (11/28)

TRANSFERS TO PERMANENT LIST

Sergeant Lockman J. R. Dundas (28)

ENTRIES FOR SHORT SERVICE COMMISSION

P. J. Burfield M.B.C.S. I.R.C.P. B. L. Hunt M.B. Ch.B. M. B. Turner M.B. B.S.
 J. R. Palmer M.B. F.R.C. C. G. Kelly M.B. B.S. F. M. Kameron M.B.C.S. I.R.C.P.
 G. A. D. A. L. Cameron M.B. B.S. I. M. Stokely M.B. Ch.B. F.R.C. Medicine
 M.B. Ch.B. M. R. Waite M.B. B.S. I. Noddy M.B. B.S. M.B.C.S. I.R.C.P.
 G. M. Palmer M.B. Ch.B. F. A. Stewart M.B. Ch.B. D. H. E. John M.D. B.S.
 M.B.C.S. I.R.C.P. H. Simpson M.B. Ch.B. D. J. Davies I.D.S. G. J. Selous
 I.D.S. C. P. Winkley I.D.S.

RETIREMENTS

Sergeant Snow-Vale (28) B. L. G. Phipps F.R.C.

Sergeant Captain C. B. Macdonald C.M.C.

Sergeant Commandant—A. J. Martin D. L. Macdonald C. Garmichael Dore C. F. Roberts

Sergeant Lieut.-Colonel—Commander (28) F. E. Evans

WARDMASTER OFFICERS

PROMOTIONS

To Wardmaster Lieutenant Commandant—S. C. Knight

To Wardmaster Lieutenant—W. H. G. Myers F. W. Mack

APPOINTMENTS

Wardmaster Lieutenant A. J. Phipps

QUEEN ALEXANDRA'S ROYAL NAVAL NURSING SERVICE

HONOURS AND AWARDS

Attendants of the R. and R. of the

Miss H. D. Lyne, Superintending Sister, Miss L. M. Crawford Superintending Sister

PROMOTIONS

To Principal Matron—Miss J. M. Widdows J.A.R.C.

To Superintending Sister—Miss G. M. May

To Senior Nursing Sister—Miss J. A. Phipps, Miss J. Murray, Miss E. M. Saunders

TRANSFERS TO SHORT SERVICE

E. R. Gordon, J. C. Mann, J. A. Maple, E. M. Mallet, J. Robertson, F. Whittaker
 E. F. M. Wilmson

ENTRIES FOR SHORT SERVICE COMMISSION

B. Brown, E. A. Cook, E. F. Day, M. R. Dean, P. M. Ellis, C. J. Evans, J. M. Hays,
 D. J. Irvine, J. Walker, F. M. Whittaker, J. M. Whittaker, E. A. Martin, M. P. G.
 Perrett, J. M. D. Pollock, M. A. Singer, E. Rogers, E. A. Woodhead

RETIREMENTS

Principal Matron—Miss E. M. Greenwell J.A.R.C.

Superintending Sister/Matron—Miss J. A. L. Bellis J.A.R.C.

Superintending Sister—Miss M. W. Scott, J.A.R.C. Miss M. G. L. Maher Longman, J.A.R.C.

**RETIREMENT OF WARDMASTER
LIEUTENANT A. J. HANKS**



WATERLOO'S LIEUTENANT A. J. HANKS retired from the Service on 16th December 1950. He entered the Navy as a Probationer S.B.A. on 2nd June 1929 and had a distinguished career. Mr Hanks' personal ability in laboratory organisation and technique was outstanding and open from the numerous laboratory technicians who passed through his hands many Naval medical officers owe him a debt of gratitude for his guidance and training which has since been of the greatest value to them in their work ashore and afloat. As an observer in his specialty he was probably second to none and for the last six years of his service he was on the staff of the Royal Naval Medical School.

As a mark of their appreciation of his services, on his retirement Lieutenant Hanks was entertained by his brother officers at the Royal Naval Medical School. On their behalf a presentation was made to him by the Medical Officer in Charge and a bouquet of flowers was presented to Mrs. Hanks by Mrs. E. F. Coulter.

ROYAL NAVAL MEDICAL CLUB ASSETS AND LIABILITIES

Assets	Liabilities		
	£	s	d
Bank Balance at 30.6.37	176	0	0
Income Account	00	14	9
Bank Balance at 30.6.38			
Surplus—Interest value	200	1	1
at 30.6.38			
1000 5/4. War Bank at			
340	200	0	0
1000 1/2 at 4 1/2, Canada			
at 71	100	0	0
1000 1/2 at 4 1/2, Canada			
at 71	200	10	0
Don. at 4 1/2 1/2			
		Balance Carried	1,071 0 1
	1,071 0 1		1,071 0 1

Income Account

The accounts have been examined and to the best of our knowledge and belief are found to be correct as shown.

The Club has received assets during the year of 100 1/2, 1/2, this being built up by subscription of new members and donations from individuals.

The constitution of the Club 100 1/2, 1/2, is now almost exactly equalled by receipts from the Annual Dinner 100 1/2, 1/2, which enables a very considerable judgment.

The total value of the Income has continued just only the value at the last audit. An investment in Warrents having been made might well be worth making again.

When considering the financial status of the Club it should be borne in mind that each Function should be self-supporting as it is expected that the income will gradually fall because of these membership subscriptions.

Signed W. J. N. Pinner

Surgeon-Commander R.N.M.

P. F. Ryan

Surgeon-Commander R.N.

1/2's Signature 1/2's

JOURNAL OF THE ROYAL NAVAL MEDICAL SOCIETY ANNUAL REPORT 1938

Assets	Income Sheet			Liabilities			
	£	s	d		£	s	d
Balance (31.12.36) Bank	171	1	0	1938 Subscriptions on			
Cash	1	2	00	Libraries	48	00	0
1/2, War Loan	100	0	0	Publications sent—			
1/2, Funding Bank	100	0	0	Authors' notes	201	0	1
Deposit Account	50	0	0		221	00	1
Subscriptions Charges							
not yet paid in							
Spring, 1938	1	10	0	Balance Carried	1,071	00	0
Summer, 1938	10	0	0				
Autumn, 1938	10	17	0				
	1,071	00	1		1,071	00	1

Audited and found correct

P. F. Ryan

Surgeon-Commander (R.N.)

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- 2489.—Medical—Vaccination against Polio (1954).
- 2490.—Hansen—B.M. 12—First Aid in the Street Nurse.
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- 2503.—Medical—Discharge of British Medical Records in Foreign Countries the Service.
- 2504.—Promotion (Hogbath)—Medical (1954) —Promotion in General Service.
- 2505.—Medical—Hogbath and R. N. other House—Discharge of those suffering from Medical Disabilities.

100

The Editor accepts no responsibility for any or all of the papers or professional subjects given, personal experience, the names of agents and materials of interest to the society, medical services and its relations, from ships and establishments, or before and foreign nations. Names of books, newspapers, and doctors are omitted from the list of subjects to individuals.

The Mulwood system should be employed for bibliographical references; these references being arranged in alphabetical order of the authors' names at the end of the contribution. Thus "Smith, P. L. 1933.2" may now read "SM, 53". In the new reference to a publication already cited by giving the author and an indication that this "Smith (1933.2) believed this to be the case."

Articles and communications may be sent to the Editor at any time. There should be double writing on each page, typed and sent in duplicate to The Editor, R.W. Medical School Administrative House.

For BLN and BMYR, medical personnel on the scene or nearest hospital for Counseling to the Royal Navy the subscription is 20% per annum (charge extended) payable on 1st January of each year. Single copies to

For all others with no error, the above compares the suboptimal 0.14% per annum increase calculated by us to the cost savings.

The processes of microanalysis by localities is similar to microanalysis as it follows the substructure of the elements of the structure of the system and considers the behavior of elements.

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TITLE **PROJECT NUMBER**

July 1991, pp. 1000. National Oceanic and Atmospheric Administration

Dr. H. H. Woodhead, Dr. J. H. Woodhead, Dr. J. H. Woodhead, Dr. J. H. Woodhead

Journal

of the

Royal Naval Medical Service

PUBLISHED QUARTERLY

(The Admiralty do not accept responsibility for the opinions expressed in this Journal)

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EDITED BY

THE STAFF OF THE ROYAL NAVAL MEDICAL SCHOOL,
ALBERTSTOCK, HAMPSHIRE

rank of naval medical officers at that time. A born administrator possessed of a sound clinical sense, he was given every opportunity to display his recognized talents to the full.

In 1906, he was promoted to Surgeon-Captain and a year later he became Principal Medical Officer of the Royal Naval Hospitals, Portsmouth. In 1909 he became Senior Medical Officer of the medical section of the Royal Naval Hospital, Haslar, and it is during this particular three-year tenure of office that so many naval medical officers serving today came to appreciate the quiet and valuable guidance which he was always so ready to offer them during their early days at the service. His residence at Haslar was always to be regarded as a home from home for young doctors who soon found themselves accepted by Mrs. Nicholls and her charming daughters as members of a happy family.

In 1910, the promotion of Percy Nicholls to Surgeon Rear-Admiral and his appointment as Medical Officer-in-Charge of the Royal Naval Hospital, Malta, came as a surprise to nobody but Nicholls himself. At a time when he was making serious preparations for impending retirement, he became the victim of sudden advancement for which he considered himself quite unworthy. Nevertheless, with characteristic determination, he left for Malta with the object that the medical arrangements in his hospital fleet and in the Mediterranean Fleet should reach the highest possible peak of efficiency under his command. In this task he succeeded.

Nicholls' time at Haslar was never easy, because it coincided with the closure of the peaceful days in Malta and the gradual development of that period of restless pressure associated with the wars in Abyssinia and Spain and the trouble in Palermo which preceded the ultimate conflagration of the Great World War.

By the time his appointment to Malta had ended Nicholls had so impressed his personality upon his numerous superiors while ever entering in his efforts to improve conditions inside the Royal Naval Medical Service that his subsequent appointment as Medical Director-General of the Navy was regarded by knowledgeable medical officers as a foregone conclusion. In fact, had this appointment not been made, there would have been great dis-
appointment throughout the whole Medical Branch of the Navy. The appointment itself was made on 2nd July 1917, and gave general satisfaction.

Nicholls went on down to posterity as one of the Navy's greatest Medical Directors-General, and he held this appointment until the 2nd July 1941. Thus meant that he was first faced with the formidable task of bringing the medical arrangements of the Navy up to a state of preparation for a major war. Having successfully achieved this object, and a work of the greatest magnitude, he then entered upon a phase which was even more strenuous, that of implementing what he had planned as the idea of an ever-changing pattern of mobilization. It is well to remember that it was Percy Nicholls who shouldered the burden of guiding the medical services of the Royal Navy

from collapse during the agonising period of the Nurse's adversity and when ships, medical equipment and supplies were in great demand but short supply. Throughout these days of stress he remained unflinching and a model of leadership to his staff to whom he was always approachable with their problems.

When he eventually retired, it was not to enjoy that rest which he so wanted, because he soon offered himself for re-employment and served, as the staff of Surgeon Captain or Medical Officer in-Charge of the Royal Naval Auxiliary Hospital, Edmonstone, from 14th January, 1943 until 30th July 1944.

Admiral Nicholls was appointed C.B. in 1934 and elevated to K.C.B. in 1939. In 1937 he was appointed Commander of the Venerable Order of St. John of Jerusalem. He was an Honorary Physician to the King from 1935 to 1952. In 1940 he was elected a Fellow of the Royal College of Surgeons of England.

During his retirement Sir Percival needed no Flaxton, Hampshire, where he was a respected and well loved character always eager to help men of the Service in which his interests continued to be so deeply rooted. Almost to the day of his death he remained a rigid adherent of naval medical procedure and protocol. In particular he rarely failed to record the intensity of his opinion that there was no special rule for the officer as opposed to the sailor. To the naval doctor both carried equal considerations and neither was more important than the other.

To many of us the passing of Sir Percival Nicholls represents another landmark in naval medical history. A great man and a great officer has left us but while nothing but respect and glowing memories. To Lady Nicholls and his daughters who survive him we tender our deepest sympathy.

Notes

CONTINUED

THE LAWS AND CUSTOMS IN SUCH CASES

Being extracts from "The Prison Minutes and Memoranda relating to my situation as Governor of the Royal Hospital, at Plymouth" kept by Captain Richard Creyke, Royal Navy, between the years August 1785, and October, 1789

COMPILED BY

Captain T. P. GILLISPIE, R.N.

It is frequently made that the Navy at the turn of the eighteenth century was a rough service to be in and that the punishments awarded were always severe. Though there are many authenticated cases of harsh and indeed brutal punishments being awarded, such action was by no means general and there are as equal if not greater number of instances of moderate punishments being awarded by Captains who fully appreciated that not only should the punishment fit the crime, but also the fact that "only so much severity should be reported to as might be necessary for the prevention of crime or offences and for the maintenance of proper order and discipline."

The "Prison Minutes and Memoranda relating to my situation as Governor of the Royal Hospital at Plymouth" kept by Captain Richard Creyke Royal Navy, between the years August 1785 and October 1789, are well in evidence and provide several instances of a true appreciation of the real value for punishment.

The Governor of the Hospital was empowered to punish each of the patients whose misconduct deserved it by confining them to the wards, by solitary confinement in the cells, provided for that purpose, or by compelling them to wear yellow garters with the name of a rebelliously serious sailor marked on the back. Such punishments depended on the Medical Officer, under whose care the patient was, certifying that he was fit to undergo the punishment awarded.

The following extracts from this journal are examples of the crimes and punishments during these years:

Thursday 12th November 1785 Four officers' patients in the Hospital who had all come here in my absence to pass the year for a fine, have did not return till between

12 and on, the morning when the Sergeant of the Guard very properly refused them admission. They came in as close the Barracks. When I went for them and represented the extreme impropriety of their behaviour, of which they rather scorned, unable to be ordered to withdraw. I resolved to report their contumacious conduct to the Post Adjutant, which I was unable to do. Lieutenant Hapler brought an officer on that point and promise of impunity in future. Writing rather to ensure that conduct I destroyed the letter and signified it to them."

Officers were not the only offenders for on 7th March 1796, Martin of the entry

"Brought from the Lieutenant of the Express Duty of his having confined in the Solitary Cell a man accused as having stolen clothes from another in the same ward and having told the doctor that he made to one of the Contract on that yesterday in the afternoon."

As a result of this report Lieutenant Crayke arranged for all those on duty in the afternoon to be paraded, but the accused was unable to park and the man to whom he alleged that he had sold the gear, and later confessed that he had made a false charge. This is followed by an entry on the 9th March

"Wrote to the Adjutant to investigate the Complaint from the charge Hapler brought against them for the offence and if proved due to shut in, not without the CAMBERIDGE with a belief of that up his back and the back had behind him."

Martens too were in trouble from time to time, on 12th April in the same year "James Flynn a Carpenter of Martens reported by Lieutenant Hapler as infirmity and despondent to his orders, examined and found the report well founded, ordered the man to be confined in the Solitary Cell as the visiting Surgeon declared that his health will not be injured by confinement and his manner may be corrected." This punishment had the desired effect for on the next day there is the entry

"Received a petition from James Flynn expressing of his remorse and promising amendment. I have allowed him to be released and returned to the Ward."

Martens too figure in the record

16th September 1796—"A horse being checked in striking the Patients were and horses was ordered to be immediately destroyed and on 16th October "visited in Marten in his discharge for despondency and improper behaviour."

All complaints against Martens were, however, fully gone into, as the following extract shows

October 2nd. Remonstrance complaint of the misconduct of the Nurse, of the 25th Ward.

October 24th. Remonstrance into the charge against the Nurse of the 25th Ward. Found much of it supported by evidence and was considered for the removal of the major part of the patients in the ward, were recommended to proceed, but on account of her character and situation in the ward and her long service in the Hospital I have allowed her to remain and hope not in face of her serving from the time of her duty again.

Some of the offences were involved and necessitated calling upon the Civil Authorities for assistance. The following is one example

17th August 2nd. A complaint was brought by one of the Agents Clerk of a quantity of tobacco (sic) being stolen from the Civil Ward the Contract's post at the South East Corner. I performed a complaint against her for negligence or carelessness in the Commitment of the Goods.

November 3rd. Having traced out the woman who purchased the proceeds of the sale of Mr. Randall's property in Plymouth and taking her to be the mother of Mary, a patient in the Hospital, who notwithstanding her character proved was strongly suspected of being the person for whom the proceeds of the sale were made. I performed

a complaint against the woman in the *Maze of Physicians*, who ordered her to be detained for *indeterminate treatment*."

Friday 14th. Summoned at the Court-house to support the charges against Henry Nash, who was clearly convicted of having brought the arsenic to the town prison of destroying the rats in a town house near Ivy Bridge, but only for the purpose of recovering again the hospital to his son, much privation and hardship being forced in this manner on him; the Magistrate ordered her son's military commission for a week. On my return to the Hospital I ascertained that the son again shows every sign of being threatened and will rely with his mother's aid, having then he had confided in the Ward that he had come for the arsenic, by the visit of a friend who wrote down the order for this, and then other orders to bring some to his body that he might get pardoned. I directed him to be confined in the kitchen and for his privation and continued the Martin who continued to be writing the order for the drugs. The doctor my knowledge of the use they were required for. Most humorous manner the case of being the adviser and confessor of the means required at the Hospital to punishment upon and others in order to get pardoned, and I should have proceeded then was further if I had not apprehended that it would have appeared that to punishment that he must have work under being for good in a distant and almost a struggle from poisoning the use of arsenic on himself which he had recommended to him and others."

All offences, however, were not treated leniently, for there is an entry on 11th December 1797, which reads:

"On the request of the First Admiral past detention that two sailors shall be sent tomorrow morning at 5 o'clock to carry the bodies of the two murderers who are ordered to be executed onboard the *MARKESBOROUGH* at Plymouth Dock."

NAVAL MEDICAL STATISTICS

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Surgeon-Commander F. P. HILLS, R.N.

Contemporary statistical methods for collating and analysing the data concerning the annual mortality, mauling and mortality rates in the Royal Navy evolved towards the end of the eighteenth century. Gilbert Blane is a forerunner to his 'Dissertation on Sources' (1793) remarks how when he joined Admiral Rodney's Fleet in 1780, the Admiral instructed him that every ship's surgeon was to send him a monthly return "stating the degree of prevalence of different diseases, the mortality, and whatever else related to the health of the prospective ships". Fulfilled with this new instruction, these statistical returns were used by him to measure the state of health of those in the medical charge and later in the Navy as a whole. The turn of the century was a period of intensive naval reform, and Blane was able to show how the yearly proportion of those sent to hospital in all parts of the world to the total number voted for the Navy by Parliament only changed from 1 in 3.3 to 1 in 4 between the years 1782 and 1799 but had fallen to 1 in 10.75 by 1843. He watched this change to the enhancement of hygienic cleanliness and improved rations, the general care of base ships and ships, improved methods of measurement which greatly reduced the number of prize crews, and to the increased interest taken by naval commanders and the Government in preserving the health of the sailor, and thus conserving naval manpower. He contrasted the experience of Admiral Lord St. Vincent who in 1806 blockaded Brest with 24 ships of the line for four months without one of them being in port and without sending more than 16 men to hospital with the experience of the Channel Fleet during the American War when over 6,000 men were sent to hospital with fever and scurvy during a single four-month period of blockade, and 2,000 on another occasion after a cruise of only six weeks' duration. In the first five years of the war with France the numbers of men admitted to the Naval Hospitals at Plymouth and Malta were 27,000 less than in the first five years of the American War although there were more ships in the Fleet. Even so in the "good year" of 1815 Blane assessed the mortality in the Navy to be 20 per 1,000, double the mortality for men of the same age in civil life who are "greater than the mortality amongst prisoners of war and rising twice the average mortality in the modern Navy. He assumed that but for the adverse mode of provisioning mentioned the whole

lack of opinion in England would have been exhausted before the end of the war. His logic was irrefutable for it was supported by his statistical returns.

Blair's views concerning the responsibility of the naval commander and the Government in matters of health preservation were echoed repeatedly by Lord Nelson in his letters and dispatches (Loughson 1884). Thus, during the blockade of Europe, he wrote on 18th March 1804, "the great thing in all military service is health, and you will agree with me that it is easier for an officer to keep men healthy, than for a physician to cure them." and on 18th March 1804, "a small man will lead out well keep the Fleet healthy, but it requires large sums to make a sickly Fleet healthy." Health cannot be cheaply bought at any price.

How well the first concept was put into effect in his own Command is illustrated by the following abstract of the weekly returns rendered by Leonard Galliege, his Fleet Physician, between the 15th August, 1803 and the 4th August 1805. During this time his fleet generally consisted of 18 or 12 ships of the line and 2 or 3 frigates manned by 4,000 to 5,000 seamen and marines.

1803—From 15th August until end of the year	
Number of men deceased on board	18
Number sent to hospitals	39
Maximum number of men on the sick list	183
1804—Number deceased on board	45
Number sent to hospitals	64
Maximum number of men on sick list	190
1805—in 15th August	
Number deceased on board	39
Number sent to hospitals	54
Maximum number of men on the sick list	200
Total number of deaths on board	102
Total number sent to hospitals	157
Maximum number of men on the sick list	190

The figures for the year 1804 show that during the privations imposed by the blockade the death-rate, if as sharp as half of those sent to hospital died, could not have been more than half the death rate for the Navy as a whole.

Thus the "Strength of the Navy" came to be recognized as a criterion of first importance for measuring the efficiency as well as the welfare of the Fleet, and in the Memorandum for Physicians of His Majesty's Fleet" (1825) the physicians of the Navy were required to report at intervals to the Victualling Board:

- (1) Neurological returns of the state of the sick
- (2) The state of the weather and climate
- (3) The height of the thermometer
- (4) Any other circumstances influencing health

1836-1896

It was not, however, until 1848 that the first pathologist, "John H. Lee under instructions from Sir William Burnett" played statistical reporting on a formal basis, and it was not until 1856 that the Annual Report was commenced. It has been observed over wide areas during the years 1856-1870 and 1871-1917. Shaw (1929) summarizes the story told in these volumes. The average death-rate per 1,000 men of the Total Force fell from 14.34 during the years 1856-1860 to 4.97 between 1881 and 1890 to 2.47 between 1891 and 1910 and finally to 1.4 for the year 1916. The death rate before the Second World War had fallen to 1.1 per 1,000, less than 1/700th the rate in 1817. The average daily number sick per 1,000 fell from 53.6 for the period 1856-1860 to 36.9 between 1902 and 1909 and 20.45 in 1936.

1907-1951

The manuscript for the Health of the Navy for the year 1907 was prepared but was never published. There were no reports for 1916 or the subsequent years until 1921, but after World War II the figures for the Total Force were abstracted from the *Navigational Tables of the Medical Officers' Quarterly Journals* for the years 1919-1945 and it is the intention that there will be published in due season in the Statistical Volume of the Official Medical History.

There were certain shortcomings in the semi-honoured system of using the *Navigational Tables of Medical Officers' Journals*. Journals might be incomplete or they might be lost with their ships. They might not always contain a full record of all the cases treated. Some cases who were sick for a long time lived in various places: for example in a ship then in a hospital abroad, then in a hospital ship and finally in a hospital at home before final disposal might be shared as several separate cases of the disease in question. The final diagnosis in hospital was not always available to the medical officer who first treated the patient; thus his neurological report was not always correct. The main reason, as there when in the year 1941, Surgeon Vice-Admiral Sir Stephen Dingley was considering the reconstitution of the Annual Reports, he advised that the old system should be carefully reviewed by an Admiralty Committee to examine the organization and methods for collecting and compiling vital statistics in the Royal Navy. This Committee's chief recommendation was that after the war a reformed system for the collection and recording of medical data should be introduced, and that this system should be based on a Central Medical Statistical Department in the Medical Department, the maintenance of a central personal medical record for every officer and rating and the use of machines as aids for deriving medical statistical information. In 1946 the Board of Admiralty approved the constitution of medical statistical work and a second Committee was set up to prepare a scheme for the future organization. This second Committee expressed the view that any working scheme should provide equally for the needs of the Annual Statistical Returns, research on problems of tropical interest and medical administration.

Before, ratings in their reports could be regrettably misled by the Joint Services Committee, the Medical Department was thus requested in May 1947 to report on the desirability of introducing a common system of medical documentation for all the Services as far as this related to the medical histories of individuals. The deliberations of the Joint Services Committee were extensive and included an examination of the systems used by the Armed Forces of the United States of America and Canada. Towards the end of 1950 the Committee produced a Report which recommended that a common system of medical documentation be introduced, which it was believed would facilitate the maintenance of accurate medical records, provide adequate data for medical research, provide the requisite statistical data necessary for the administration of the Medical Service and fulfil the requirements of the Services Authorities. This system was virtually that recommended by the Royal Navy's Committee on Medical Statistics applied to most the needs of all three Services.

Twenty-two new forms (the "F Med" Series) were drafted by the Joint Services Committee for issuance and to supersede many existing forms. These were duly supplied to the Fleet and to Naval Establishments on shore and the new system was inaugurated in October, 1951. Concurrently, a Central Medical Records Organisation was set up within the Admiralty to provide adequate records for medical administrative purposes, medical research and medical statistics including the compilation of the Report on the Health of the Navy. The activities of this office were co-ordinated closely with those of the Admiralty Statistical Branch and the data were coded by means of a punched card system and processed by the Central Hatterick Machine Bureau.

Prior to this time "The Nomenclature of Disease", drawn up by a Joint Committee appointed by the Royal College of Physicians, London, was the source of reference for compiling naval medical statistics. With the inauguration of the new system and by agreement with the Army, Royal Air Force and other Ministries, the International Statistical Classification of Diseases, Injuries and Causes of Death published by the World Health Organisation (1948) was adopted for the classification of disease. For the classification of injuries the International Law was expanded to meet the special needs of the Armed Services in this respect.

The data from which the Report on the Health of the Navy is now compiled are derived from the information supplied on the Inpatient Record Forms (F Med 14) completed in sick bays, sick quarters and hospitals on all occasions when a patient remains in the Sick List for forty-eight hours or more. There are some exceptions, cases of venereal disease and of neurological disorders which are treated on the Arranging List only are shown as "Q" cases of sickness. All suicides, and deaths are included even though the individuals concerned have not been on the Sick List previously, in which case they are shown as "Q" cases of sickness. Sickness records for personnel who rendered the Naval service freely abroad are not included.

The *Important Record Form* accompanies a patient from ship to hospital and elsewhere until he or she returns to duty or is disposed of otherwise. Duplication of reporting is avoided, and the final diagnosis is shown on the Form when it is sent to the Admiralty. Thus eliminating two of the sources of error in the old system. When the *Important Records* are received in the Medical Records Branch of the Medical Department certain essential items of information on the form are "coded" on to a Coding Sheet in a series of numbered columns with the following headings:

(30) Age, (23-29) Service No., (30-34) Rank/Rating, (34/35) Ship (36-40) Age, (41-43) Total Service, (44) 1st (Inland) or 2 (Sea), (45) Enlistment or Commission, (46-47) Fleet or Station, (48) Service in Theatre, (49-52) Date of Admission, (53-55) Total Days Treatment, (56) Final Disposal, (57-60) Principal Disease or Injury, (61-64) Complication or Sequel, (65-66) Secondary Disease or Injury, (69-70) Nature of Operation, (71-74) Second Operation, (75-76) Special Information, (77-80) Escorted Cases of Injury, which, with the exception of Serial 20 correspond in sequence to the following items on the *Important Record Form* (1st Med 84): 1 and 2, 3, 4, 5, 8, 10, 13, 12, 15, 14, 16, 15, 17, 18, 19, 20, 21, 22 and 24.

The coders are specially trained and become highly efficient at this work, but, however, expert they may be, the accuracy of the information concerning the patient which is transferred to the Coding Sheet, and on which the vital statistics are entirely dependent, is only that of the accuracy with which the original data are entered on the Forms by medical officers and nursing and sick berth staff. It is particularly desirable that items 16, 17 and 18 on the *Important Record Form*—the "Principal Disease or Injury," "Complication or Sequel" and "Secondary Disease or Injury"—should conform with the nomenclature of the Seventh Revision of the International Statistical Classification on Injuries, Diseases and Causes of Death, 1959, World Health Organization (1957).

The coded data are transferred from the Medical Department to the Central Hallowarth Machine Bureau and are tabulated under the supervision of the Admiralty Statistical Branch of the Secretary's Department under the following headings:

DATA TO TOTAL FOR HEALTH OF THE FLEET

Form No.	
1	Mortality, sickleave and deaths for Total Force and for Fleet or Station: Royal Navy Royal Marines and Women's Royal Naval Service.
<i>Special Ship and Special Information</i>	
2	Final cause of sickness, sickleave, deaths and total sick days for crew (A list).
	(B) Officers. (C) Ratings.
3	Final cause of certain infectious diseases by Fleet or Station (Detailed list).
4	Final cause of venereal diseases by Fleet or Station (Detailed list).
5	Final cause of syphilis by cause and type (C list). (A/N) Coded.
6	Final cause of malaria in age groups by cause (C list).
7	Final cause of malaria during last two years of service (C list).

It would appear that there has been a notable improvement since 1936 in the incidence of venereal disease from 57 per 1,000 per year in 1936 to just under 20 per 1,000 per year in 1953. Further research is required, however, since the improvement was offset by the apparent increase in the extent of the gonorrhoea infection which more than doubled during the same period almost entirely because of the increased incidence of non-gonococcal infections a condition which was labelled 'venereal' more frequently before the 1939-1945 war and which had undoubtedly become more prominent, so that the rate rose from 3.7 per 1,000 in 1936 to 17.4 per 1,000 in 1953. Despite this the overall gain during this period is appreciable, particularly when the greatly reduced time which is now necessary to cure the average case of syphilis or gonorrhoea is taken into consideration.

In addition to the reasons already mentioned further information on measles and mortality rates is available in B.R. 1235, *An Analysis of Inevitably due to Disease and Deaths due to Disease—1934-1943* to which the figures for 1944 were added later. When the figures in this report are compared with those for 1933 the following trend is observed for various prominent causes of loss of man-power in the Service:

Deaths, Rate per 1,000 Strength (Army's Chief) Logo Standard before 1933 distribution)

	1934-5	1943	1944	1953
Pneumonia tuberculosis (A. 11)	1.7	1.2	2.3	2.8
Pneumonia pneumonia, etc. (A. 67-68)	1.4	4.7	5.4	2.6
Polio (A. 69-70)	8.4	3.1	1.8	2.3
Diphtheria (A. 71-72)	1.8	0.9	0.5	1.1

Such figures should however be interpreted with care. For example the recorded measles rate for pneumonia tuberculosis has increased since before World War II, but recent years included cases which would not have come to light earlier. The rate for chronically diagnosed pneumonia tuberculosis which accounted for the great majority of the cases seen in the Service before the advent of mass fluorography in 1945, was shown by Brooks (1952) to have fallen from 2 per 1,000 per year before World War II to 0.54 per 1,000 per year in 1953 which reflects, more correctly the actual improvement which has been achieved in the control of this insidious infection. The remaining cases were largely made up of non-symptomatic infections detected by periodic fluorography and eliminated from the Service before they might spread the disease to others. On the other hand, the increase in recordings of cases with pyrexia alone may be accounted with a good measure in the incidence of the disease, for it parallels the trend in civilian life but this possibility requires critical examination.

Remarks

So far this account has been concerned with annual or periodic reports on the main trends of morbidity, disability and mortality for the Total Naval Force and the various Fleets and Squadrons which are dispersed in different parts of the world. In addition it is sometimes necessary to carry out

the total period under review—1944 to 1947 inclusive—this difference was highly significant. This was not so for the previous years 1946 and 1947, but the numbers available for analysis then were very small. During 1945 the observed numbers were also greater than the expected numbers for persons who were inoculated between the thirty-first and seventeenth days before the onset of illness. The significance of this observation was enhanced by the fact that for persons who had been inoculated against measles, within six months of the onset of illness the expected numbers did not differ from the expected numbers for any of the thirty-day periods under examination (Eds. 1955).

Careful consideration of the evidence failed to provide any other conclusions but that immunization against the typhoid group of diseases as it had been practiced in some areas in the Navy during the war years, probably did carry a small risk of transmitting the virus of hepatitis, and added further emphasis, if this were necessary, to the need for developing vaccination and inoculation techniques to ensure that such transmission cannot occur.

(c) *The Effect of Climate on Measles*

When the centre of the naval war moved to tropical waters in 1944 information was urgently required as to the effect on the health of ships' companies of the excessively warm atmospheres which were unavoidable in the "blackboxes" and partially closed-down workshops. Because of the discontinuance of the systematic collection of material for the Health of the Navy no medical statistical data was available in the Medical Department. Information was therefore requested by the Commander-in-Chief of the Eastern Fleet and later of the British Pacific Fleet concerning the monthly incidence of the main disease groups for men on the Atlantic and South Seas during the periods ships were serving in tropical waters. The data collected were analysed in the office of the Commander in Medical Sciences in the Medical Department. The detailed results were reported to the Medical Research Council's Royal Naval Personnel Research Committee, which was so conducting a series of investigations on the effect of climate on fighting efficiency and were summarized briefly in the *British Medical Journal* (Eds. 1944).

The overall incidence of the causes of ill-health under study was twice as great in the ships of the Eastern Fleet and the British Pacific Fleet as it was in those establishments where the mean air temperature was on the average about 7° F. lower than the mean temperatures on the main docks. This raised incidence was shown to be largely due to skin diseases. When the war ended collection of accuracy concerning the movements of ships made it possible for the information to be included in monthly returns of sickness which were made from all ships to the Admiralty. An analysis of these returns revealed that during the first year after the war the relative sickness incidence was more than doubled in tropical waters as compared with northern temperate waters, and the duration of the skin cases increased by three to four times.

Table 1. *Continued* - Mean upper deck temperatures, 1945 to 1949. Total number of observations (No. obs.)

Mean number	Aboard Purple Heart					Landed from				
	1945					1946				
	Temp. obs. (No.)	Temp. obs. (No.)	Temp. obs. (No.)	Temp. obs. (No.)	Mean temp. (°F)	Temp. obs. (No.)	Temp. obs. (No.)	Temp. obs. (No.)	Temp. obs. (No.)	Mean temp. (°F)
Mean number	102.04	111.05	111.10	120.70	120.94	95.92	117.95	121.98		
Mean temperature	8.14	8.70	8.16	9.81	8.24	1.23	6.47	6.64		
Mean duration*	7.17	10.15	7.82	9.62	8.79	10.94	9.60	9.13		
Other means	1.00	2.15	1.03	0.47	0.64	0.11	2.05	0.10		
Infants	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Children	0.17	0.79	0.46	0.41	0.34	4.09	7.61	7.54		
Psychomotorians	0.00	0.07	0.00	0.00	0.00	0.11	0.00	0.11		
Physicians	0.19	0.19	0.15	0.17	0.22	0.20	0.27	0.17		
Noncombat	0.17	0.50	0.10	0.03	0.20	0.48	0.34	0.42		
Common cold	1.26	1.90	1.39	0.39	1.02	1.02	1.26	1.17		
Non-fluorid	1.00	1.90	1.12	1.04	0.75	0.70	0.00	0.70		
Fluorid (F ⁺ U ⁻)	0.07	0.07	0.07	0.00	0.11	0.00	0.00	0.07		
Pulmonary										
Infectious	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.01		
Mean square	3.37	4.15	1.97	2.01	2.79	5.90	4.20	7.00		
Total	16.75	20.49	14.38	8.40	20.54	24.07	20.10	14.13		

*Excluding partly lost.

(Roberts 1944). It was then suggested that the monthly means should also include the mean upper deck temperatures recorded at noon, and analyses of the returns for the following year—1948 to 1949—provided convincing evidence that there is a relationship between the temperature on the upper deck and the health of sleep compasses (Ellis, Smith and Underwood 1954). In particular the numbers of men on the Ascending List (which are not reported either on the F Med 14 or in the Quarterly Journal and so are not available for inclusion in the Medical Department records) increased markedly as the average air temperature on deck was reported as around 80°F, and very markedly when it exceeded 90°F, again very largely as the result of the increased incidence of skin diseases. This trend has been conclusively confirmed by a further analysis of similar data for the years 1945, 1947 including (Sargh 1951). The trend has now been demonstrated as it has agreed the purpose for which it was designed.

These three studies not only provided the Admiralty with guidance on what were essentially domestic problems, but also enabled the Naval Medical Service to contribute information of fundamental importance to preventive medicine and of value to other sections of the community.

In addition to conventional medical studies the permanent importance of the statistical approach to physiological and psychological research has

additional investigations to answer questions which cannot be resolved by examination of the information in ecological tables or even an Inpatient Record Form. Over the years a number of special studies have been undertaken by the Medical Department either in association with the Admiralty Statistical Branch, Medical Research Council Committees, particularly the Royal Naval Personnel Research Committee, and with the advice of the professional Consultants and of the Consultant in Medical Statistics to the Royal Navy. The following examples from the experience of the last few years serve to illustrate the type of problems which may be handled in this way.

(c) *Pulmonary Tuberculosis*

An interesting example, in the More Daniel's Lecture to the Royal College of Physicians in 1937 Dr W. D. W. Brooks, Consultant in Diseases of the Chest to the Royal Navy illustrated one of his main themes with figures of the way in which fluorography reduced the incidence of pulmonary tuberculosis in the Service between the years 1940 and 1945. The data on which his analysis was based was collected by the Fluorography Unit and collated in the Medical Department. The satisfactory result which he was able to report up to 1945 has continued since and evidence in this effect was recently provided by the Admiralty Statistical Branch by separate evaluation of the cases reported under Code A1 (Diseased List 361-630) of the International Nomenclature Classification as follows:

Year	No.	Death rates		Incidence	
		Rate per 1,000		Rate per 1,000	
		of strength		of strength	
1941	105	1.9	100	2.4	
1942	238	1.5	261	2.6	
1943	180	1.5	367	1.6	
1944	178	1.5	150	1.5	
1945	176	1.5	344	1.40	

It is gratifying that, whereas the incidence in the Navy was approximately double that in the other two Services for very many years before mass fluorography was introduced, the rates for 1943-1945 compare not unfavourably with the rates in the other Services and suggest that the naval ecological hazard is being brought under control.

(d) *Infective Hepatitis*

During the last three years of World War II the incidence of infective hepatitis and "anatomotherapy" hepatitis gave rise to grave concern. The annual rates per 1,000 for the Total Naval Force for "Diseases of the Liver" which very largely comprised these two disorders indicated a steady increase up to 1943:

1940	1.38	1943	4.01
1941	2.36	1944	3.83
1942	2.56	1945	2.81

With the associated increase in the absolute numbers it was found that whole wards in Naval Hospitals were frequently devoted to the care of those cases many of which continued on the sick list for many weeks or even months, although it is true that the naval epidemics never reached the explosive proportions experienced by the Army during the North African campaign. Thus in 1943 the mean per thousand "sick daily" with disease of the liver was only exceeded by the same for injuries, respiratory tract infections, pulmonary tuberculosis, the common cold, bronchitis and convulsion. The mode of transmission of the infective agent, and indeed the identity of it, was unknown.

In order to examine the possible liver in greater detail a Fleet Order was issued in 1944 which stated that all cases of non-surgical jaundice were to be reported to the Admiralty together with a number of items of information bearing on possible aetiological factors. Before sufficient returns were available to permit a satisfactory analysis, however, one part of the problem had been largely solved by Salomon and his colleagues (1944) of the Royal Army Medical Corps, who demonstrated convincingly that cytomegalovirus was a major factor in the production of a sero-therapy hepatitis, and the declining incidence of infectious hepatitis cases during 1944 lessened the urgency for an early analysis of the returns. The reports were not discontinued until the end of 1947, by which time the absolute numbers of cases had greatly decreased and it was apparent that much of the information required in this return was unlikely to be of sufficient value to merit analysis. However, in view of the prominence of faulty hygiene mentioned as a cause of jaundice in the typhoid charts, a general analysis of the data reported was carried out with particular reference to the probability of infection having been transmitted during vaccination against smallpox, or inoculation against the typhoid group of diseases. Practically all the men and women in the Service were vaccinated against one or other of these diseases at one time or another, and a preliminary study at the Royal Naval Hospital at Haslar in 1945 indicated that 75 per cent of men admitted with infectious hepatitis developed the disease within two months of the date on which they had received their last "T. A. B." injections (Ellis, 1955).

Between the last June, 1941, and the 9th July, 1945, 4,129 reports on men and women who had contracted non-surgical jaundice were received by the Medical Department. Of these 715 (553 for men and 83 for women) recorded the dates of onset of illness and the date, if the last inoculation, vaccination or both preceding the illness, and indicated that within the previous twelve months the person in question had not experienced any other form of potential transmission or therapy. Blood or serum infusion, had not had venereal disease and was not a known contact. A statistical comparison of the cases observed during these years and the cases "expected" if there were no association between immunization procedures and the onset of hepatitis revealed that for each of the war years—1941 and 1945—the numbers who were inoculated against typhoid between the eleventh and twentieth days preceding the onset of illness were significantly greater than the numbers to be expected if there were no relationship between these two events, and, for

been demonstrated during a large series of laboratory studies, on the effects of darkness, humidity, on the ability of man to work at high temperatures during four-hour watchkeeping periods, which were undertaken at the Medical Research Council's Royal Naval Tropical Research Unit, Singapore, between 1942 and 1953, the results of which will be published as the Council's Special Report Series in the near future. Without the assistance of sound statistical advice from the outset in the planning of these experiments throughout the collection and evaluation of the data, and in the preparation of the survey documents, reports on which the assessment will be based, the conclusions might well have been misleading, they certainly would have been less informative and the return from a costly enterprise would have been greatly reduced.

Medical officers who initiate research studies either in naval hospitals or elsewhere should always obtain statistical advice in the planning and evaluation of their studies, for this will not only help them to economize in time and resources but it will enhance the validity of any results which are achieved.

ACKNOWLEDGMENT

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SURGICAL EMERGENCIES AT SEA

BY

Surgeon Commander C. D. COOPER, R.N.

The treatment of a surgical emergency at sea may be quite straightforward or may constitute a most difficult problem, and this article is written with a view to guiding the sole medical officer serving in a small ship when such an emergency arises.

General principles are considered first, and then typical cases in detail.

DIAGNOSIS

The first principle is to make a firm clinical diagnosis, which may be quite precise, for instance "acute appendicitis," or may necessarily be in more general terms, for example "acute abdomen."

Once made, the diagnosis enables the pathophysiology of the symptoms to be visualized, the course of the illness can then be forecast, a prognosis can be given and treatment can be planned.

TREATMENT

Treatment should conform as closely as possible to hospital practice ashore, but may be modified by conditions afloat.

CONDITIONS AFFECT

Some of the modifying factors are listed below.

- (a) conditions of weather, wind and sea
- (b) conditions in the ship
- (c) ship's movements and programme
- (d) facilities available for surgery
- (e) availability of trained assistant and nursing assistance
- (f) the experience and skill of the medical officer in charge of the case.

These factors are easily evaluated in every surgical emergency, and only two comments need be made. First, (b) the Medical Officer on passage should make his surgical equipment in detail, considering, as he does so, likely conditions that he may have to treat. He will then have a clear mental picture of his material resources, and at the same time any unthought-of deficiencies will come to light and can be made good.

Second, (f) he should remember that thorough firm-aid training of his

ship's company is never misled and that intelligently by discussion. Carefully checked and judged in accordance demands, can be of great value in emergency.

QUESTIONS ARISING

Having diagnosed the case and evaluated the above factors, a series of questions will commonly arise, thus:

- (a) Is operative treatment indicated?
- (b) If so, is treatment urgent or can it be postponed?
- (c) If treatment is urgent, can it be carried out on board?
- (d) If treatment can be postponed, for how long is it safe to delay?

The Medical Officer reflects on the case and he has answered each question clearly and to his own satisfaction, and he can then proceed to the next step.

PLANNING

Treatment can now be planned, and if this is necessarily in stages or expedient, the Medical Officer should decide in his own mind at what point or on what indications, he will move from one stage to the next, or will abandon any expedient regime.

PREPARATIONS

The sick berth staff can now be told the plan of treatment, and instructed what to do. Preparations may be quite simple for instance for the opening of a relaxation under gas, or much more may be required as in preparing for a laparotomy.

Usually a clear hour is required before a Sick Bay can undertake major surgery, and on that period the Medical Officer carries out his next duty, that of giving information.

INFORMATION

The Commanding Officer is the first person to be informed of any major emergency, and the Medical Officer should now report to him in person.

Three typical situations are discussed below.

- (1) The report may be issued as medical assistance, for instance an officer has sustained a Colles' fracture: but this will render him temporarily unfit for duty.
- (2) A rating may have reported sick with acute appendicitis and early operation may be advisable.

In such a case the Commanding Officer's experience and help are of great value. The Medical Officer may be prepared to operate on his own and may have advised this, but his decision may be completely altered if his Commanding Officer suggests increasing speed or altering course either to land the case or to transfer it to a larger ship.

- (3) An accident may have occurred on board causing several casualties. The Commanding Officer will wish to know as soon as possible the nature, extent and general condition of those affected.

ANESTHESIA

The first rule governing anesthesia should be the individuality of the patient. Before we give the Captain anesthesia, and then can be described as follows: if such advice is based on a sound psychological foundation.

For instance a firm statement can be made: The patient has an acute abdomen, and I suspect a complete intestinal obstruction. I can safely look after him on board for six hours, but he should be transferred or landed if possible within that time. If he cannot be landed, I must then be prepared to operate on board.

That is clearly much better than: I am worried about a wound. He is difficult to diagnose. He may have a stoppage, or it may be a wound. I don't know for another few hours. I may have to operate then, and if I do I shall wish we had landed him earlier.

Firm diagnosis followed by firm advice should be the aim, and firm advice based on sound psychology is seldom resisted. Conversely the Medical Officer should avoid being swayed by other than medical considerations. Whether or not it will be possible to interrupt an exercise, or unpopular to devote time to a minor programme is not his concern.

Having given his advice the situation can be discussed between the Medical Officer and the Captain. Any necessary plan, affecting the ship, such as altering course or having to land, will be made.

The Medical Officer is then free to carry out his purely medical task assured that his Commanding Officer understands and approves his programme.

SIGNALS

Discussion as above takes place and preparations in the Sick Bay are still incomplete. The Medical Officer should now have his mind to signal, and should study Queen's Regulations and Admiralty Instructions, War 1914 (Reports of Casualties and 1684 (Patients Seriously or Dangerously Ill). Casualties should be reported promptly, and every case must be taken to narrative correctly the name and full particulars of the signal. An accurate casualty list, with an annex, should be prepared and kept in the Sick Bay (drawers and cases removed from other ships should similarly be carefully classified and recorded).

Cases dangerously ill should be reported by signal without delay, and it is advisable that all cases about to undergo major surgery on board should first be reported as seriously ill. Operating on a small ship at sea is a major task, and the surgeon doing so accepts a great responsibility, it follows that the appropriate Naval authorities and the patient's next of kin should be informed beforehand that a serious situation has arisen, and will be dealt with.

CLASSIFICATION OF EMERGENCIES

The Medical Officer about may now come to his cabin to refresh his knowledge of anatomical detail and operative technique (or to brief his assistants), so that this will be a convenient point at which to classify different types of emergency.

The first broad domain is that those arising from the physical stress arising from BLUNDER.

Injuries

Prevention: FIRST AID and PREVENTION are three aspects of the subject which require emphasis here.

Prevention—The majority of injuries will arise from preventable accidents. Safety precautions are the responsibility of individual officers and departments, and much care is spent in ensuring that guard rails are in position, hand slips effective, and that damage take no unnecessary risks at work.

First Aid—However, accidents still happen. Therefore the value of thorough and painstaking instruction in first aid to the ship's company by the Medical Officer needs no further emphasis.

Prevention—Certain types of injury will result in early collapse and death if the patient of correct treatment is not promptly given. It is important to recognize such cases without delay, and it follows that, when dealing with a number of casualties, all cases must be sorted into priorities and the most urgent cases treated first.

The following table taken from the NATO Emergency War Surgery Handbook is an excellent guide.

PRIORITY TREAT

First Priority

- (1) Apnoeic and respiratory obstruction due to
 - (a) Respiratory obstruction.
 - (b) Choking from vomit.
 - (c) Tracheo-bronchospasm.
- (2) Shock, due to (these conditions should be dealt with, if possible, before shock develops in the victim)
 - (a) Major arterial haemorrhage.
 - (b) Major arterial haemorrhage.
 - (c) Fractures of or around spine.
 - (d) Cardiac perforated organs.
 - (e) Major muscle damage.
 - (f) Extensive burns.
 - (g) Serious multiple wounds.
 - (h) Major trauma to eyes or ears.

Second Priority

- (1) Internal damage
 - (a) Perforation of gastric intestinal tract: gastric ulcers and/or laceration and perforated spleen.
 - (b) Traumatic injury without rupture a.
- (2) Loss of the major respiratory tracts
 - (a) Tracheo-bronchial rupture.
 - (b) Others.
- (3) Closed cerebral injuries with increasing loss of consciousness.

Third Priority

- (1) Spinal injuries requiring decompression.
- (2) Pelvic injury: control of time than major degree requires intervention.
- (3) Lower limb injury and dislocations.
- (4) Gustatory injuries.
- (5) Maxillo-facial injuries.

These (contaminated) sites & sites are now made. Details of surgical treatment (or gasping) (as first) are, the Medical Officer will prefer to find these fully set out in written & official.

Expanding & Collapsing

The water-filled artery of the apparently drowned and the unsupported support in a case of bilateral fracture of the lower jaw spring to mind. The artery must be closed, and must remain unobstructed.

Expanding veins: breaks causing superficial haem, may be sealed to produce external and largest observation. In such cases a transfusion is lifesaving.

Stopping Chest Wounds

There must be rendered airtight promptly by plugging with a rubber gauze pack covered by dry dressing and wrapping. Surgical closure can be considered in due course.

Punctate Perforations

This may follow barbiturate and is relieved by inserting a needle (gastrostomy) into the affected pleural cavity. The puncture is made in the second intercostal space anteriorly, one inch from the edge of the sternum. The needle should be connected to an underwater seal, or else to a non return flap-tube made from a length of surgical glove finger.

In all the above instances correct treatment should be initiated with the minimum delay.

Shock

Where there has been a rapid and significant fall in the circulating blood volume, as in severe wounds and extensive burns, a restorative transfusion may be indicated.

First, it is important to obtain a sample of the patient's blood sufficient for several subsequent blood grouping and cross matching tests. (5 ml of blood should be taken into an oxalate tube, and 5 ml into a dry tube. The tubes should be labelled and safely stored.)

Immediate transfusion may then be commenced using Dextrose or acrombated plasma in the first instance.

If blood is required, volunteer blood donors are now called for, and it is clearly a great saving of time to have in the first day a list of such volunteers, whose blood groups are already known.

Volunteers for the serum can be requested early in the morning, then suitability as donors can be assessed, and their blood groups ascertained.

Deaths to and from the shop constantly occur, therefore it is important to keep the donors list updated and up to date.

The blood of suitable donors: grouping, cross-matching, and blood giving now follows normal hospital technique.

Foreigners

These should only be removed when the patient is unobscured and on the operating table, and when the Medical Officer is prepared either to enlarge

and explore the wound and fix or repair the damaged area, pharmacology to suppress.

Closed Cervical Injuries with Increasing Loss of Consciousness

Fortunately such injuries are rare and general anesthesia is seldom necessary. Local anesthesia for the layers of the scalp and dural mater will be adequate.

The patient's head should be fully shaved and positioned at the end of the operating table to allow full access.

A scalp flap should be planned and turned down, controlling hemorrhage by tying the galea + periosteum with hemostats. The skull is then explored at the indicated site, the disc of bone removed, and the opening enlarged as required with a biting forceps.

A hemorrhage of some sort has usually to be dealt with vascular artery, and it is fair to remind the operator at this point that the classic method of controlling a middle meningeal hemorrhage is to plug the foramen spinosum with a short length of sterilized muslin.

It is desired to emphasize again, that the kinds of injury associated above are rare. It is therefore permissible to call the surgeon's attention to their need of prompt recognition and treatment. At the same time he is reminded that a batch of casualties should be accurately diagnosed and promptly sorted into priorities. In wartime this is a procedure of major importance, in peacetime it is no less necessary.

In fact, psychiatric experience shows that the majority of emergencies will be simple fractures, wounds and burns, all of which can be treated confidently and satisfactorily in the Salt Flap of a small ship.

Notes

It is not necessary to comment upon the majority of emergencies arising under this head. They are more or less routine and simple to treat.

Infectious spots, abscesses and ulcers are common. "Where there is pain, let it out," is an aphorism as sound now as when it was first stated. It is important not to delay measures if antibiotics do not cause early resolution of an infective process. In certain sites (for instance the otcho-tychil fossa) fluctuation is not feared; redness, tenderness and clear exudate are indications for incision.

Acute appendicitis and enterocolitis purpurea, typhus are the two major illnesses which make the biggest demands upon the skill, judgment and resolution of the junior medical officer.

Acute appendicitis is relatively common, but the great majority of cases must occur in a place of ship's movements and programs will show when the ship is in harbor or within easy reach of one.

Under these circumstances it is universally agreed that the correct procedure is to discharge the case to hospital where, without delay for appendectomy.

Performed elsewhere there is far less common, but the above remarks and

the same procedure apply. Early laparotomy and closure of the perforation is standard treatment.

The Medical Officer whose ship is well at sea cannot carry out the above advice. He will first confer with his Commanding Officer that it will not be possible to land the case nor to transfer it within a reasonable time. He must now treat the case on board, and it will be convenient to consider acute appendicitis first.

The surgeon who undertakes major surgery on a small ship at sea faces a difficult task and assumes a heavy responsibility so that while essential operations must be performed, there is a place alike for a cautious treatment and it is proper to avoid non-essential operating.

Acute Appendicitis

In the light cases of acute appendicitis fall into two groups: those that will settle down with expectant treatment, and those that will not. The clinical problem is to decide to which group a given case belongs.

The inflamed appendix itself may be of obstructive or non-obstructive type. Obviously, the latter type will tend to settle down: the former will not.

Classically the typical mild case with tenderness over McBurney's point may be expected to settle down. The patient is treated as an hourly pain started to keep water only as given by mouth, antacid granules and streptomycin are prescribed, and an ice-bag applied to the patient's right side: food is found to be helpful. Morphine is avoided.

Under such an important regime the patient may well improve and his symptoms gradually subside. A tender, localized mass may appear within the right lower abdomen, but the patient is clearly better as himself: a diet of slops can be commenced and the patient is eventually landed. Intermittent appendicectomy will follow.

The obstructive type of case should be suspected from its behaviour. At first it will present in the ordinary way, and an expectant regime will be ordered. Later more pain is felt, and there is greater evidence of toxæmia (fevered rise of temperature and pulse) because of pus under pressure within the appendix. Vomiting, especially if repeated, is a corroboratory sign.

On examination tenderness is more marked, more diffuse and accompanied by more muscle guarding. At this stage the Medical Officer may well decide to operate.

If he does not, subsequent evolution of the pain characteristically signifies gangrene of the appendix, and is followed by rupture of the caecum. The increased pain and toxæmia of peritonitis then appears, with diffuse tenderness in the right lower quadrant of the abdomen associated with muscle rigidity.

Expectant treatment is fully described in standard textbooks, and as evidence is a careful watch on the progress of the case, while being prepared to operate if necessary. In carrying it out, repeated visits to the sick bay tend to confuse the diagnosis, and it is better to see the case every two hours. After two or three such visits it will be quite clear on almost grounds whether

or not the treatment is successful, and if it is, not the Medical Officer should decide finally upon appendectomy.

Delay in opening is a disaster at this stage or potentially most dangerous.

Appendectomy in the Dog

Appendectomy is described at some length since it is a common procedure, however much of what it used to apply to my major surgery worked out often.

Anesthesia will vary according to the judgment of the Medical Officer and the equipment available. After current recommendations the patient may be kept asleep with small doses of intravenous pentobarbital given continuously. Once anesthetic agents are in position strapped to the extended left forearm the process can be continued by a tail bath using working under anesthesia from the surgeon. Local anesthetic is used for the abdominal wall which is infiltrated in layers, using 1 per cent xylorane to a total of 30-60 ml. Alternatively, a portable type of Boyle's apparatus may be used, or the old-fashioned open mask, inhaling with a mixture of chloroform two parts—ether three parts, and going on to ether only.

In all cases the patient is immobilized on the operating table by the Medical Officer. When the patient is stabilized at the correct plane of anesthesia the Medical Officer hands over to his next best man and the anesthetist directs the anesthesia verbally.

The operation area can now be cleaned and shaved, and the bladder emptied by catheter if necessary.

All necessary instruments have been sterilized and set out on a side table, and these are now rapidly checked. Using a Chaurin's Sizer, the necessary lengths of suture are now added to the layout.

The surgeon can now wrangle gown and gloves himself, at the same time coaching his assistant through the same process. Before starting the operation it is helpful to arrange at a large bowl or on a table all the ligatures and tissues that are likely to be required. This is more convenient than breaking glass ampoules while operating. For the same reason needles should be chosen and threaded in advance.

The writer's preference is for catgut throughout, but if this is in short supply knots threaded in an adequate substance.

The abdomen is now incised, the assistant placed in position, and surgery can begin.

The skin incision should be the usual diagonal cut—centered over McBurney's point and as long equal to the width of the operator's hand. A common error is to make the skin incision too shallow and too low. The external oblique muscle fibres on operation, is divided in the same line, and the next two layers can be split in the line of these fibres (graciously) or divided across these fibres (possibly not). The latter method gives the better exposure in a difficult case, therefore it should be adopted if there has been previous evidence of peritonitis or if muscle estimation is not complete.

It will be found helpful to lift the external oblique with two Lane's tissue forceps, one on the umbilical side of the planned incision and one opposite and to start the cut between the forceps, deepening it until the peritoneum is seen. The peritoneum is then gently separated from the outer surface of the muscle working upwards and downwards, and the muscle cut completely.

The peritoneum is opened on the same line, suitable retractors are inserted and the incision is extended by an *Evans* rule. Any one of these followed downwards leads to the base of the appendix, and thus to the remainder of the appendix.

It may may now the incision is mobile, will lift out of the wound and with gentle encouragement from the right forefinger the appendix also emerges. If the appendix is retracted the incision must be enlarged by dividing the parietal peritoneum immediately lateral to it and below, so that the incision can be lifted upwards and medially.

The retro-ileal appendix is displayed by pulling out the last loop of ileum, and the pelvic appendix is freed by gentle finger dissection.

Appendectomy thus presents no real difficulty in keeping the parietal peritoneum well away from the incision. Sometimes the vessel wall is too indurated to permit retraction. The appendix stump should then be doubly ligated and the area drained.

In some cases the distention of the appendix will be noted, and the finger exploring for its tip will release a collection of effluvia put or spent upon a freely adherent and relatively inaccessible organ. Two or three minutes may be spent on careful exploration and assessment of the situation. If the appendix is not readily freed within that time the surgeon should not hesitate to make a wide-bore rather drainage tube down to the infected area, leave the appendix in situ, and close the wound round the drain.

Otherwise, after completing appendectomy and securing haemostasis, the wound should be carefully closed in layers without drainage. Antiseptic powder should not be dusted spontaneously, but continued persistently as high drainage after operation.

After operation the patient should be returned to bed, and an antiseptic wash established until it is sound. Careful notes of the operation including times of start and finish should be made, and clearly written directions given for immediate after-treatment.

The satisfactory conclusion of the case should then be reported to the Commanding Officer, and as soon as is warranted a further signal should be made to the ship's administrative authority.

Two should state the nature of the operation performed, and the patient's subsequent condition in general terms. The signal signifies that this information may be passed to the patient's crew if his, and similar progress reports are made by signal as occasions demand.

Perforated Caecal Ulcer

Fortunately this is not a common emergency at sea. The performance is inevitably on the extreme end of the first part of the chapter. If it is a

small size on a leak, and the stomach is empty, the tendency will be for the leak to adhere to the gall-bladder or undersurface of liver and to seal itself off. Hence, no expectant, non-operative form of treatment has an advantage in this condition also.

The essence of such treatment is to keep the stomach empty, therefore, the first requirement is that the Medical Officer must successfully pass a Ryd's or Levin's tube into the patient's stomach, conversely the patient must co-operate and swallow the tube.

Gastric suction is necessary every fifteen minutes for the first six hours is then required, after which it can be less frequent. Meanwhile the patient is receiving intravenous fluids, one bottle every four hours, glucose and saline alternately.

As in acute appendicitis, expectant treatment will fail in certain cases, and the Medical Officer must then operate without delay. Often it is clear at the outset that the perforation is a large one and that the patient had a full stomach when he perforated. The physical signs will then indicate shock and extensive or spreading abdominal rigidity, and these cases must undergo early operation.

Laparotomy.

Another common, but most difficult problem, and a considerable degree of education is required. The open enter method may well be chosen, and induction by a chloroform-ether mixture should be slow and gradual lasting any eight minutes.

The first step in the operation is to identify the transverse plane. This is measured upwards along the linea alba, and a half-way between the xiphoid cartilage and the umbilicus is marked. The finger now moves laterally to the right along this plane until it has crossed about half an inch of the width of the right rectus abdominis. The incision is a vertical one, centred on this point, and initially equal in length to the width of the surgeon's hand. The incision is deepened through all layers, that is, it is transversal, and the peritoneum is opened.

A series of snips on hidden will be required to close out gastric contents, and by pulling the stomach into the wound and to the left the perforation will be identified and become accessible. Three or four intestinal sutures (on curved anastomotic needles) are now passed in the line of the dissection taking deep bites in its wall well proximal to the perforation and well distal to it. These are left long and clipped.

When all are passed, traction on the stomach is completely relaxed and the sutures are very gently tied to close the perforation, the omentum being tied first.

The abdominal wall can be closed in layers if education is good. If not, it is easier, quicker and safer to close with thick nylon interrupted sutures passing through all layers. These are left long when passed, then tied separately making sure by feeling with a finger when the peritoneum (part) has been tied that no loop of gut is caught in any suture.

Post-operative treatment needs no further comment.

If laparotomy is undertaken for any other condition, the method, a matter of opinion, the procedure is the same. A right hand would sweep the width of the surgeon's hand in contact two-thirds above and one-third below the umbilicus. After a preliminary exploration, this can be enlarged upwards, or downwards as required, and there should be no hesitation in making a long incision to ensure thorough and complete exploration.

CONCLUSION

No junior Medical Officer should be eager to perform major surgery unless it can be secured. Conversely, he should not hesitate to operate in emergency if operation is indicated.

Sometimes the nature of the case tends to deter him. Operation is clearly demanded, but he feels that he himself is insufficiently experienced so that the surgical procedure required is formidable.

He should then reflect upon the following points. First, such situations confront all surgeons from time to time and are surmounted by careful consideration of what to do, combined with resolution in the doing of it.

Second, in emergency affect the patient rather severely the able Medical Officer, he will only discharge his responsibility to the patient by carrying out the necessary surgery.

Third, it is the writer's experience that difficulties seldom be exactly where they are expected. Major procedures, going on reputation of considerable difficulty in performance as inference to the textbooks, are often quite easy in practice once a firm decision has been made to carry them out. Making the decision to operate is where the difficulty lies in such cases.

Emergencies will arise at all times and operations are often indicated and unavoidable. The Medical Officer should not then hesitate to carry out his task.

Planning is one secret of successful surgery whilst another is modification of a second opinion. "Diligence prevails Treatment."

Clinical Notes and Cases

A CASE OF BILATERAL PNEUMOTHORAX AND HÆMOTHORAX

BY

Sergeant Captain H. L. CLEAVE, R.N.

AND

Sergeant Captain M. A. BUDGE GUNN, R.N.

W. A. B. 1940 25 10 113

This patient was admitted to H. N. Hospital, Malta, in a state of collapse at 4 a.m. on 20.1.11. He was complaining of pain in the left shoulder and left side of chest.

Present History.—No recent illnesses. His last chest X-ray was in December 1930 and was found to be normal. He smokes 35 cigarettes a day and is also very fond.

History of Present Illness.—20.1.11. Patient awoke with indigestion and pain all across the left side of the chest. He had nausea and diarrhoea.

20.1.11. The pain became worse and spread to the left side of the chest and to the left shoulder.

On Examination.—20.1.11. Temperature 97°, pulse 120, respiration 30. The patient was a tall, thin, spare build who was pale and extremely nervous.

The trachea was deviated to the right side. There was an obvious left pneumothorax with no visible dullness to percussion on the left base. The apex beat was palpable on the left of the sternum. An underwater drainage of the pneumothorax was started through the left fifth intercostal space and appeared to help the patient. However, by 5 p.m. the patient's condition was rapidly deteriorating. The left base was叩濁 and some part of pure visceral pleural separation. Pulse was now 150 and thready.

At 7 p.m. operation was performed. The left rib rib was removed and on the gross (uninflated) specimen the posterior end of the left rib was also removed. The gross was well exposed. Parts of both blood and clots were removed from the left side of the chest. A very careful search of the lung parenchyma and the pleura were well exposed, no source of leakage. It was then noticed that a posterior part of blood formed just above the main vein. This was stopped and the wound closed by a small gauze wound on the apex of the left placed circular very close, on the undercoat of the subcutaneous artery as it comes laterally. While some difficulty a long piece of Mersilene Terylene was applied to the patient and left on for ten minutes. Before removal the lungs were washed with the disinfectant to ensure haemostasis.

The patient's condition all through the operation was rather critical. Before and during the operation he received an all group parts of blood. The chest was closed with a large intercostal drain, placed the high, a cloth secured to the left intercostal of the posterior axillary line. The patient was given antibiotics and made slow but good progress. His

darkness occurred on 2-8-57. The difficulty in finding the source of the hummingbird was twofold. Firstly no flexible endoscopes; light was available. Secondly the surgeon believing that he would find the vessel opening on the lung surface in the site of a repaired bulle, had made the thoracoscopy too caudal. The bleeding in fact often does come from the lung surface from a repaired bulle. Drs. Calver and Leeds (1968) have pointed out that frequently the source of bleeding has not been found on thoracoscopy. With a department of patients and under difficult theatre conditions it is very easy to see how this could happen. These authors also draw the analogy with the covers human legs that in some circumstances the operation of thoracoscopy with division of pleural adhesions. This investigation coming from an occasional wound is reminiscent of the histological evidence of the accompanying pulmonary collapse. As it is very important for the surgeon to realize that the hemorrhage may be from the chest wall from an occasional wound kept up and for him to provide some source of light that can be placed inside the thorax. The light from the endoscopes may could be improved for this purpose but was not thought of in the time of this case.

Serial X-rays showed progressive re-expansion of the left lung, except for some collapse of the lingula.

On 28-4-57 he was sent home on twenty one days hospital sick leave. He was feeling well, but was very thin.

On 6-5-57 he was returned to an outpatient having developed cough and sputum pain around the right axilla with coming in a chest in severe chest pain.

The physical signs were those of a large right pneumothorax with considerable mediastinal shift. Outpatient drainage was started and again the patient came another 14th. However the tension pneumothorax returned and on 26-5-57 an operation was performed. 1000 c.c. of air being removed by a closed pneumothorax apparatus. He continued to make excellent progress, but it was considered wise to carry him home by air from the Manchester Airport.

Discussion

It used to be taught that the common cause of spontaneous pneumothorax was tuberculosis. A view generally held until Kjaergaard reviewed the whole subject in 1972 and 1973 and pointed out that it was usually due to a congenital or acquired defect in the lung or pleura giving rise to emphysematous bullae. Certainly enough the condition is not especially common in emphysema itself. These remarks apply to spontaneous idiopathic pneumothorax (primary) and not to cases secondary to trauma, malignancy and other causes.

Kjaergaard (1972) followed up 48 of his cases and found phthisis in only one; a patient who lived with a tuberculous relative and yet remained fit for over three years, later to develop tuberculosis in the other lung. He concluded that it was a benign condition involving no greater risk of phthisis than for the average individual of the community.

Since then there have been several long term surveys. Peck (1976) followed up 25 out of 25 cases from two to fifteen years and some developed tuberculosis, and Chaff (1987) in his review of Royal Naval cases found one of his 183 followed up developed contralateral tuberculosis three years after his pneumothorax.

When tuberculosis does cause pneumothorax it is usually apical and even an early case will show some pleural reaction and probably cough, fever and raised E.S.R. and what will count

One patient was a tall, flat-chested lad of very spare and wiry build. His body build has often been noted, and Morris (1946) remarks that two-thirds of his patients were between 18 and 37 lb. under weight.

In the present case the first symptoms occurred on both occasions when the patient was at rest. It is remarkable how often this is so, and how comparatively seldom exercise precipitates an attack.

In Myers' (1946) series of 155, 10 came on during sleep and 12 when walking as opposed to only 3 when running and 7 when labour. The part played by exertion is of some importance in the literature when the question of aetiology arises, as it is estimated that 80-85 per cent. of cases occur at rest or during very mild activity.

Associated haemothorax occurs in about 5 per cent. of cases, though some estimates put the figure higher, and in the majority of cases appears to come from the parietal end of a torn aorta. The effusion tends to remain fluid because of the dehydrating action of the thoracic cavity, and thus masses of viscous fibrin may become deposited on the parietal pleura. The bleeding frequently stops in the first three days. The treatment is early aspiration to prevent fibrothorax, and if bleeding continues or is massive then transfusion and thoracotomy. Haines (1946) seems to have been the first to do a thoracotomy for this purpose, and was unlucky in that he met numerous torn sympathetic trunks too numerous for repair. The most shallow cause of pneumothorax may be allowed to expand in their own time. In the past much stress has been placed on allowing the lung to remain collapsed to facilitate healing, though these lungs appear to heal promptly, and there is no doubt that re-expansion is speeded by the withdrawal of air. The simplest method is underwater drainage. An important practical point is that the end of the tube should only dip 1 cm. or so below the level of the water as the pressure in the pleura must be high enough to displace the column of water.

Alternatively the air may be removed by covering the handle of a pneumothorax apparatus as an easy and efficient method of affording quick relief from symptoms. This case was not followed up for the reason of the wound as the left lung had virtually re-expanded by the time the right lung had collapsed. Spontaneous bilateral pneumothorax is very rare, and seems to occur in about 5 per cent. of cases, and may constitute a posing medical emergency. Finally the patient was sent home by sea. It might be argued that this was not strictly necessary as the lung had re-expanded, but it was considered safer to do so. Cliff (1957) records a patient who became increasingly breathless when he was flown to England from Malta before the lung had completely re-expanded, and shows the discomfort as well as the dangers of air travel under such circumstances.

SUMMARY

A case is presented where a left spontaneous pneumothorax was re-pleurized by severe arterial haemorrhage. This was treated by underwater drainage for the air, aspiration of blood, and, when continued bleeding was

apparatus, immediately. During convalescence he had a right spontaneous pneumothorax treated by aspiration of air and breathing exercises and physiotherapy during convalescence. Recovery was satisfactory and he was repatriated to the United Kingdom.

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A CASE OF CYANIDE POISONING

BY

Sergeant Commander A. ROBINSON, R.N.

HARRISON, as quoted by Taylor, says: "Cyanides wreck the machinery by destroying the cytochrome enzyme system on which respiration depends." Cytochrome is an enzyme necessary to the transference and utilization of respirable oxygen.

The cyanides act with great rapidity and are toxic in relatively smaller amounts and lower concentrations than other protoplasmic poisons. Taylor states that, as hydrocyanic acid gas, the lethal concentration in the atmosphere is between 0.05 and 0.1 per thousand depending on exposure time. When most extensively the critical dose is 2.5 minutes of the 2 per cent. solution, and the maximum lethal dose is about 1 gram or approximately 20 minutes of the solution.

Locke says: "The longest survival time after ingestion of a lethal dose (of hydrogen cyanide oil of bitter almonds, potassium cyanide, etc.) is about two hours, but half a minute is nearer the average limit."

Koch-Sapperton puts the maximum lethal dose at 25-30 minutes of the 2 per cent. acid and about 5 grams of γ -cyanide.

Taylor gives a number of cases where the dosage and duration of action is known with some certainty. Thus, a young woman who accidentally took 1.65 grams of hydrogen cyanide walked 150 yards, was found unconscious five minutes later, became comatose within twenty minutes, and died within thirty minutes of taking the poison.

In 1915 a student nurse was taken ill at 9:30 a.m. with vomiting which rapidly proceeded to unconsciousness and convulsions. She died approximately two hours later. There were no pathological changes to be seen in the organs at autopsy but a strong smell of cyanide was noted. Quantitative tests revealed 2½ grains of sodium cyanoposide and 54 mg. of hydrogen cyanide in the stomach. From other organs the strongest recovered released a total of about 360 mg. circulating in the body. The ingested dose was thus 181.5 mg. of sodium cyanoposide plus 154 mg. of hydrogen cyanide.

In this case the much greater dose and the longer duration of life after taking the poison indicates that there is considerable variation in both factors. A full stomach must delay absorption considerably and thus prolong life. A solid salt is slower in its action than a substance. Taylor says that 5 grains of potassium cyanide have caused death in fifteen minutes but upon recovery has followed the ingestion of 40 grains.

The toxicity of the salts of hydrogenocyanic acid seems to depend on the speed with which they come in solution in the stomach, that is, it depends on the acidity of the gastric juice and the nature and contents of the stomach. The same is probably true of the organic cyanides, the benzocyanides and sulphocyanides.

Taylor describes the symptoms: "Within a minute or two he may be moribund: the eyes fixed and glassy; the pupils dilated and unresponsive; the limbs flaccid, the skin cold and covered with a clammy perspiration; there is copious breathing at long intervals; the pulse is imperceptible; respiration is slow, deep, gasping and sometimes heaving; death supervening without recovery of consciousness."

Keath Simpson says "When and as taken the trace of events is lightning in rapidity, the subject may literally 'drop dead'." With the cyanide there is likely to be a period of ten, twenty or thirty minutes before death supervenes."

At approximately 10:15 a.m. a worker in one of the Fisheries had been at full work apparently on his way to get a cup of tea. The nursery assistant who arrived at the same found the man motionless and that he, the doctor, the father saw the patient at 10:15 a.m. that is about twenty minutes after he had been taken ill. The symptoms they were—convulsions flaccid limbs and their reflexes expired out of 7 to 8 per cent. The pulse was imperceptible on the wrist and 70 per cent. An oculo reflex was also not, but the pupils were fixed, equal and small. The facial muscles were relaxed but in use. No abnormal smell was noticed. A cyanide incident seemed the most likely explanation.

The man was at once put into the bag, and after some while sent to a local civil hospital bed died in the bed, only about three or four hours. From the time at which he was sent to bed and death took place was therefore thirty-five minutes. Absolute recovery seemed to be promised and it would be safe to put the period at more than thirty and less than forty minutes.

The cause of death was not ascertained and a muscle note was found in the dead man's locker on the same afternoon. At the autopsy cyanide was found in various organs post-mortem and this was confirmed by analysis and was accepted as the cause of death at the report. The pathologic group evidence stated that death would have occurred within a

in venous. There is confirmation of the anal. of the manuscript received from and returned that he had not found out that the patient was a child.

The Medical Officer who first saw the case would not be allowed to examine the patient or certify a diagnosis. Nobody was the first to see the boy while comatose (4). For almost 24 hours, pharyngeal and gastric thought of vomiting the patient (5) also found it.

The patient at the pharynx and is found by the Police Nurse to contain 5-10 per cent potassium cyanide. The contents of the stomach weighed 100 grammes and contained cyanide-equivalent 11 mg. of hydrogen cyanide and 0.11 mg. of potassium cyanide. We have noted that a lethal dose is of the order of 50 mg./m² and 0.1-0.2 mg./m² cyanide. We do not know the exact dose in this case. Presumably, it is the dose of the cyanide has supported by and is possible that he might have been dead when the patient emergency was found in the Royal Society but had been received 1 week or so before the cyanide.

ACKNOWLEDGMENT

I am grateful to the Commission R.N. Harwick, Chairman and the Admiral Superintendent R.M. Dockyard, Chairman, for permission to publish this report.

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PROTEOLYTIC ENZYME THERAPY AND AN UNUSUAL RESULT FOLLOWING ROUTINE REMOVAL OF WISDOM TEETH

BY

Samuel Constantine (Dr S. B. MACKENZIE, R.N.)

PROTEOLYTIC enzyme therapy postulated and applied, has been discussed by Clinger, Harfield, Spigel, Miller and others. Further tests on the effects of this therapy on local oral inflammations are still being carried out.

Previous findings by many investigators could be summarized as follows. Proteolytic enzymes have the ability to digest dead tissue and fibrin without adversely affecting normal tissue, or normal healing processes, and are specific anti-inflammatory agents [1]. There are no contraindications, or systemic side effects and they do not interfere with the blood-clotting mechanism [2]. However, streptokinase should not be given to patients with defective clotting because of possible haemorrhage [3].

It appears to be likely that locally an acute tissue injury and cellular

drugs, there may be an imbalance between macromolecular protein, in varying stages of degradation (e.g. coagulated plasma, edema fluid, hyaline chaps, etc., connective tissue meshwork and cellular debris) and the fluid of natural proteolytic enzymes [1]. Blood and lymph vessels are blocked by fibrin, small clots and other protein macromolecules which also impact within the inflamed connective tissue areas [1]. This increases impermeability and with edema and cellular infiltration causing extravascular compression of the smaller vessels whose endothelium is at the same time becoming detached, a barrier is formed. This prothrombotic tissue barrier limits the spread of inflammation, but at the same time it blocks the accessibility of fresh proteolytic enzymes and of antibacterial drugs.

Augmented proteolytic activity following enzyme therapy, restores the enzyme-substrate interaction and so may correct the complex vascular, lymphatic, interstitial and metabolic equilibrium [2] and improve circulation in the affected region, allowing the humoral defenses of the body and the antibacterial drugs to reach the area and accelerate resolution.

This biochemical reaction is fundamentally different from the spreading effect of hyaluronidase [3] which increases tissue permeability by breaking down the hyaluronic acid in the "cement" substance of the normal connective tissue.

Clearly it was thought probable that inflammation and edema might be alleviated by using antibiotic drugs and streptokinase simultaneously [3].

Streptokinase is a proteolytic enzyme of streptococcal origin. It works by a dissolving phenomenon to split fibrin causing rapid dissolution of fibrinous exudate and blood clots [4] thus lowering the viscosity of the subcutaneous fluid. Pure streptokinase is not yet made up a mixture of streptokinase and streptodornase [4] called streptokinase is used as a source of streptokinase. Streptodornase acts as a catalyst to break down the structure of pus-like exudate [5] but intravenously pure streptokinase by itself does not produce the required therapeutic effect [4]. Streptokinase is antigenic, and an anaphylaxis may develop as a result of a former hemolytic streptococcal infection [5].

In recent clinical investigations on the treatment of post-operative breast inflammation and edema [4] 5 000 units of streptokinase dissolved in 5 cc physiological saline solution was injected intravenously twice daily, and six days were given though this dose could be increased if necessary. Antibiotics were given simultaneously.

It was decided to use proteolytic enzyme therapy on a few cases with a view to reducing post-operative swelling. Patients who might be expected to show more than usual reaction to the extraction of their teeth were chosen.

- (a) Had a single tooth buried under large apical areas of bone resorption and declining sinus.
- (b) Had an impaction on abscessed tooth and three unimpacted and impacted wisdom teeth which would require the removal of bone in order to extract them.

- (c) Had under swelling and temperature two following the removal of abscessed and exposed vesicle tooth on the left side under general anesthesia and penicillin cover. She was admitted to have the wisdom tooth of the other side removed.

Each case was photographed before, and twelve hours or more of maximum swelling after operation. Blood was taken before surgery to postulate any defect in clotting mechanism and to determine the whole blood count. This was repeated immediately post-operatively and again after forty-eight hours. Donor plasma: 5,000 units to 5 c.c. saline solution, was given intramuscularly a.m. and p.m. on the day before, with penicillination and p.m. on the day of operation.

The first case, a boy of 15 years, was given 500,000 units of penicillin penicillin with each dose of dicloxacillin. He had one tooth and acute abscessed under general anesthesia and during the operation it was noted that there was less than normal bleeding and a slow capillary oozing of blood. He reacted to dicloxacillin, by having, apparently, no more than three hours after the first operation. This decreased to half an hour. He had similar but less pain after the second operation and thereafter no more discomfort. His temperature rose 3 degrees and his pulse to 92 post-operatively but was normal next day. The blood clotting mechanism remained within normal limits. The whole blood count rose from 7,000 before to 19,000 after operation. Swelling was minimal.

The second case, a girl of 15 years, was not given any antibiotic. He had her remaining 30 teeth removed under general anesthesia. He had no to dicloxacillin did not show ill from hours after her second operation. After 48, 960 hrs, with adequate pain and swelling legs. This discomfort had just by the next he went to sleep. His temperature and pulse rose irregularly progressively and the following afternoon he had a convulsion of right arm, right leg. His temperature and pulse continued just above normal for three days. A mild rash developed on the area of operation and was controlled by phenazone. The blood clotting mechanism remained within normal limits. The whole blood count rose from 17,000 preoperatively to 18,000 after operation. The swelling was again minimal.

The third case, a girl of 15, had two right wisdom teeth. The upper was erupted but not fixed well and the lower was abscessed and exposed. There was no inflammation. The clotting mechanism was normal and the whole blood count was 7,500.

Post-test after the first operation of dicloxacillin at 1,500 on 12.12.55, the patient did a good deal of vigorous play of a skill game, but refused to accept acute reaction was. The pain remained localized to the upper abdomen and was increased with a feeling of heaviness. Complaint was also made of difficulty in breathing and of a sensation of discomfort in the back of the throat. She had never suffered from worms (verruca) in the past. Post-operative physical examination was confined to the abdomen where tenderness was noted on palpation in the epigastrium and left iliac fossa. Rays of the chest and skull were normal. She was given a further 5,000 units of dicloxacillin at 1,500 and at 1,000 a further intramuscular showed no outside change in her condition although she had become mildly pyrexial with a temperature of 100 degrees.

The next morning, 1st December, her temperature was normal and her symptoms had largely disappeared. She was given a last dose of 1,000 dicloxacillin at 1,500 and the remainder of 5,000 units at 1,500. The patient although producing discomfort of a certain nature to that previously experienced, appeared to be much less severe.

On 3rd December she was given a further 5,000 units of dicloxacillin with her penicillin, one at 9.00 a.m. along with one c.c. of Penicillin. The teeth were removed under general

anemia to 10 mg. or less, definitely. The whole blood count was less than 4,000. By 1939 this anemia, then, 4.5, considerably more nothing that would naturally be expected.

The next day, 15th December, the swelling had increased and she was put on penicillin 400,000 units twice daily. Heparin was applied to the swelling externally and she had her meals both every half hour. Her whole count was now 10,000.

The following day the swelling had deflated and she looked brighter and felt better though she still complained of headache. This headache, which had been present on cold days since the day of operation, by this afternoon became more distinct on "boring" and radiating backwards over the occiput of the neck. She complained of nausea but had not vomited. On examination she had a temperature of 100.5°. Pharynx and neck reflexes were well marked and the upper extremities and reflexes. Knie's sign was positive. The right side of the face was swollen considerably from submandibular region to parotid region, and there was tenderness. Similar movements appeared to be full although difficulty was experienced in raising the shoulders on account of pharynx and parotid edema. There was no increase of the congested blood vessels, no phosphenes and the fundi were normal. On account of what appeared to be substantial reduction of meningitis, further penicillin was given and 5 cc. of ether subcutaneous fluid removed. The patient is in clinically and cytologically normal.

On the 16th December the headache was still severe and there was tenderness over the right parietal area. It was considered that an allergic etiology with involvement of the choroid was still not to be excluded and for this reason crystalline penicillin, 500,000 units, and chlorbutol 100 mg. was given on hourly. The patient was also prescribed a salt and sugar solution to be taken. The next afternoon was followed by the presence of marked inflammatory nodes at the site of the dorsolumbar puncture in the deltoid. White blood count was 14,000.

Twenty-four hours later, 17th December, there was substantial clinical improvement with subsidence of the headache and other features of meningitis. The local infection at the dorsolumbar still very pronounced and involved the right supratrochlear region. Treatment with, but throughout, the course of the swelling.



By the 26th December the headache had gone, the swelling had subsided sufficiently for an area of incision to be made over the arch of the mandible. The patient demonstrated lateral vision in the right eye, which she was now able to open again. It was thought that this might be a symptom of residual parotidial infection.

The next day she was very much better and the incision was removed. The nasal discharge was lessening. Systemic penicillin was stopped but she continued the therapy with oral penicillin V, 100 mg., and chloramphenicol reduced to 250 mg. both six hourly.

By 11th December her condition had so improved that admission was discontinued.

As has been indicated, the aetiology of the last described case could have been infectious, aided by the spreading effect of the proteolytic enzymes and resultant antibiotic cover given in the first instance. It could have been an allergic reaction, though there was no known history of a previous hypersensitivity reaction during the last three years. The removal of the wisdom tooth was not a source of long procedure, though the lower tooth was completely encased in bone. There was no postoperative inflammation in the region of the tooth which was removed.

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MANAGEMENT OF TETANUS WITH ORAL CHLORPROMAZINE

By

Surgeon, Lieut and Commander W. R. GIBBERT, R.N.

The mother of a large dog washed the outer angle of her right hand with her jacket. Seven days later a tetanus had developed which appeared then locally, with her tongue. As mentioned by could not speak properly. The presence of Tetanus was diagnosed, her given tetanus (around 100) that her teeth were locked. Then symptoms appeared on her neck, on the third day again tetanus appeared with results, 24 days after the dog was was made to, dead.

—(Reference) (1957) 100-101, 1

When the diagnosis of tetanus has been possible since the time of the Father of Medicine, treatment has remained a matter for much heart searching and musing.

In recent years two main classes of action have emerged. Heavy sedation on the one hand and reflexive drugs with tracheostomy and assisted ventilation on the other. Any single case of tetanus has called for either of both these measures almost irrespective of the amount of anti-tetanus serum given after the development of symptoms (Johnstone 1958).

Relaxants were brought into use because it was frequently found that a level of sedation deep enough to immobilize the patient was still in demand for controlling tetanic spasms. However, the relaxants interfered with reflex, positive pressure ventilation, and the risk of asphyxiation pneumonia (Tins) did not lower the mortality (Puckard 1958).

The drug required was obviously one which would relax the patient adequately yet maintain his consciousness and respiration through the current period.

After trying various drugs on tetanic subjects, Kelly and Lawrence (1956) found chlorpromazine as promising that they tried it on a 2-year-old boy admitted to hospital with tetanus. The drug was given as an intravenous infusion at amounts between 100 and 200 mg. per day. They note that his jaw relaxed, and he could open his mouth within ten minutes of the first dose. In 48 hours days the infusion was become grossly overdosage and considerable interference therewith occurred. After seven days of chlorpromazine therapy unequivocally the boy recovered.

Puckard *et al.* (1958) treated two cases of tetanus on the basis of these findings: a boy, aged 14 and a girl aged 12. In both cases the patients could swallow on admission but chlorpromazine in massive doses was given parenterally, with myelofluoride and finally by intravenous infusion. In both cases tracheostomy was performed before continuous infusion of chlorpromazine was commenced. In one case a severe and dangerous apnoeic convulsion occurred but both children recovered. There was never any vomiting in either patient. In both cases the daily dose of chlorpromazine varied between 200 and 600 mg.

Another successful result was obtained by Aiken (1958) in a severe case in an 8-year-old boy. He used chlorpromazine with potassium bromide and chloral hydrate. The route by which chlorpromazine was given is not stated but it does not seem to have been intravenous. He gave 2,250 mg. over a period of seventeen days.

Hutchison (1958) recently found a moderately severe case with extra-muscular chlorpromazine and oral morphine. The dose of chlorpromazine was relatively much lower than that of previous workers (150 mg. daily on divided doses intramuscularly) but the morphine was increased to a daily average of 36 gms. In spite of this, tracheostomy was required on the third day. Morphine was continued by intraspinal drip thereafter. The patient recovered.

I had cause to review this instance intensively when on the 6th October 1958 I admitted a small 4-year-old boy with what proved to be a severe case of tetanus.



FIG. 2

Discussion

The anamnesis proved the age of the patient; the duration of symptoms and the temperature all suggested that this would be a severe case of tetanus.

On reviewing the literature it struck me that the one common factor in these five successful recoveries was the large dose regime of chlorpromazine, as each author had used a different adjunct. Two of the six had suffered damage from the presence of an infectious drip.

As there was no reason why 0.2 gramme per day of chlorpromazine should not be perfectly well absorbed from the gastro-intestinal tract and is excreted in the drug per se (Brydson for reporting, this route presented itself as the most attractive, provided it was effective. The central extramuscular injections made swallowing very uncomfortable and the efficacy of the treatment seems well demonstrated in the above case. Nursing was easy and the dangers of tracheotomy, intragastric drip and other measures circumvented. It may well be that other cases would require much higher dosage, but there is nothing to suggest that a higher dosage would not be equally well absorbed. There is a theoretical risk of exposing the liver to too high a concentration of the drug by this route, but the prospect of surgical treatment is usually inevitable and no signs were evident in this patient.

It would seem that this method of treatment is well worthy of further trial.

SUMMARY

A 4-year-old boy with tetanus was maintained in good condition and recovery using chlorpromazine and chloral hydrate by mouth. The implications are discussed.

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I should like to thank Surgeon Captain L. G. Yonck (R.N.), for giving me permission to publish this article. I am indebted to Surgeon Lieutenant David Shepherd for taking the pictures.

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INTRACRANIAL GUMMA AS A CAUSE OF JACKSONIAN EPILEPSY

BY

SEYMOUR LIEBMAN, I. H. STEWART, & J. N.

A SINGLE GUMMATOUS INTRACRANIAL MASS PRESENTING, IN A SPACE-OCCLUDING LESION, AN APPARENTLY GENERALIZED EPILEPTIC SEIZURE AND THE FOLLOWING CASE IS OF INTEREST

CASE REPORT

A young adult male was admitted to hospital on 15th October, 1960, having had, in apparently complete remission, attacks which incapacitated him daily. However, on further questioning, the following history of past illness was obtained: the right wrist was stiff and the left arm was stiff.

The first attack was more than twelve hours before admission when he noticed that he could not move his left arm properly. The arm then became the site of constant myoclonic jerks beginning in the elbow and he developed a sensation of falling to the left. The subsequent loss of consciousness was of two or three minutes' duration and there were no after effects.

The arm and partially neck were the second attack on the evening of admission. On this occasion he experienced the same myoclonic movements, starting at the left elbow and involving the left arm, but in addition marked movements of the left leg. The subsequent loss of consciousness was longer—about ten minutes, but there were again no after effects.

His general health had been good and he denied having had any previous fits. He also denied any injury to either leg but did admit to involuntary contractions during the second attack.

In the past history it was noted that there had been relief from headache following the administration of glucose in 1953 and surprisingly there was no history of vesperal disease. There was nothing relevant in the family history, but in the social history it was noted that he was under investigation for syphilis.

Examination revealed a well built rather stout man of a cheerful disposition. His intelligence was almost within the subnormal knowledge of the patient but showed that he had been normal. His blood pressure was 110/70 and no abnormality was found in the cardiovascular, respiratory, gastrointestinal or genito-urinary systems. In the neurological system, the only abnormalities were slight over-irritability of movements of the left arm and associated slight responses in the leg. There was marked asymmetry of the right eye with hyposthenic contraction of the left eye. The pupillary responses were normal and the fundi and vision healthy. The vocal cords were full and there was no enlargement of the thyroid gland.

Results of investigation were as follows: Cerebrospinal fluid—normal pressure with a large amount of xanthochromic debris. Blood—Wassermann reaction positive. Treponema pallidum reaction

and reported by Cushing (1926). "I do not recall any other cases of this disease in which the tumor was removed completely. However, some of them were not."

Discussion

Cushing (1926) in his review of 2,000 cases of intracranial tumors, which cover the complete literature to the outbreak of the first World War, states the brain tumor rate for 1914-1915 as: "If this is divided into 1914-1915 cases and 1915-1916 cases, they are two almost identical figures." It appears from the review of this extensive study of the literature it is interesting to note that of the twelve examples of glioma of the brain described by Cushing, 3 occurred in his first series of 194 cases whereas only 1 occurred in his second series, which contained ten times as many cases.

In a review of the literature since Cushing's time very few cases of glioma of the brain have been reported, but it is striking how basically similar all these cases appear to be. The main points would appear to be as follows:

(a) A pre-operative diagnosis of glioma of the brain is very rarely if ever justified. The occurrence in the same patient of signs of an expanding intra-cranial lesion together with neurological evidence of epilepsy is not sufficient to justify such a diagnosis, especially if we remember that a glioma of the brain in the latent form of epilepsy and the rarest type of brain tumor. Needless to say, a cerebral neoplasm may be found in a epileptic patient. And no specific diagnostic test or sign has yet been discovered which would justify a pre-operative diagnosis of glioma of the brain being made at least in early cases. Banerji and Fries (1937) suggest that if other cases produce a picture of seizures on angiography as did their case, then this particular finding may be considered characteristic of the condition. Unfortunately in the particular case reviewed here, angiography revealed no abnormality whatsoever, thus far from supporting any contention that tumors must be present in such cases, but it is possible that it may be a later sign. The present case underwent angiography only two months after the onset of symptoms whereas the case reported by Banerji and Fries underwent the same investigation eighteen months after the onset of symptoms.

(b) It is interesting to note that in all cases where the investigation is reported, examination of the cerebrospinal fluid has proved negative, as the Wassermann and Kahn tests. This is especially surprising when one remembers that the signs of all intracranial processes in and to be recognized. The most consistent findings in the C.S.F. appear to be a raised protein with an increased globulin and a positive, type Lange curve. These findings usually appear to contrast in direct proportion to the duration of symptoms, and it is as well to remember that cerebral neoplasms as opposed to granulomas, may give rise to false positive serological reactions.

(c) Papilloedema can occur and frequently does occur, in epileptic meninges, and the combination of papilloedema, together with positive serological tests is not suggestive of intracranial processes without other signs of an expanding intracranial lesion. If, however, no improvement

results following antibiotic therapy, it is unlikely that the diagnosis is correct. The great difference between corneal pus and aphthae meningitis is that the former is resistant to medical treatment, whereas the latter is susceptible. Corneitis may also be confused with tuberculous meningitis which involves the paraventricular area rather than the meninges; the latter are far more commonly cerebellar than cerebral, and are often multiple as opposed to the usually single pusoma.

(d) The final point which arises is that there is rarely, in modern times, a history of previous syphilitic disease, some form of Jacksonian epilepsy being the initial symptom. This most often occurs in individuals aged 30-60 years of age and some 10 years or more after initial exposure to infection. Whether the state of affairs will continue to exist unchanged now that penicillin has been so use for the treatment of gonorrhoea for about fourteen years it is difficult to determine. But we are again reminded that the indiscriminate use of penicillin is small down and in those cases in whom syphilis has not been excluded, a thought with dangers one of the sort of which is an intracranial pusoma. The need for the thorough follow up of all cases treated for gonorrhoea goes without saying—neglect of this basic principle may result in cases similar to the one reported in this paper.

SUMMARY

A case of intracranial pusoma is described and the relevant literature is reviewed. The rarity of the case allows merits its discussion, but, in addition, the difficulties involved in diagnosis make it the main interesting. We are usually taught that a double diagnosis should be avoided but there is an exception to every rule as the case described could well have illustrated. In the large majority of patients presenting with signs and symptoms of an impending intracranial lesion in whom a positive Wassermann reaction is found to be positive, one is confronted primarily with the differential diagnosis and treatment of the intracranial lesion and only secondarily with the treatment of the syphilitic infection. Rare conditions such as pusoma of the brain, should not be diagnosed simply to avoid a double diagnosis. The co-existence together of two fairly common conditions, such as syphilis and an intracranial tumour, is not as rare as the occurrence by itself of a pusoma in the brain and only if some specific diagnostic sign or test were to be discovered, could such a diagnosis be made prior to operation.

Finally, the dangers liable to result from the indiscriminate use of penicillin in the treatment of venereal disease are clearly demonstrated. Whether this applied to the case described or whether it did not the importance of a thorough initial investigation and follow up of all such cases to the exclusion of syphilitic infection is evident.

ACKNOWLEDGMENTS

I should like to thank Surgeon Captain W. J. Forbes Clark and G. D. Ward, D.S.E. for their critical reading of the proofs, Surgeon Commander J. Mac F. Gill for helpful advice in the preparation of the case report.

Professor C. Lambert Rogers, C.B.E., F.R.C., for kindly providing details of the investigations and treatment undertaken at the neuropsychiatric unit and assistance in the final correction of the proofs, and Surgeon Captain F. A. S. Coulter, D.S.C., for his encouragement and permission to publish this article.

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 Editorial

WE JOURNALIZE THE STORY. By John Winton. With Editors. Pp. 124. London: Michael Joseph Limited. Price 15s. 6d. net.

THE EDITORS OF THE *RAVIL STARR*, MANCHESTER, SAYING IS NOT often accused of saying a novel; especially a first novel. After reading 'We Journalize The Story' we are sorry that the accusation does not come our way more often.

We have no idea who John Winton is and all our efforts to trace and compare his two previously published stories (1930-31) in correctly produce a profound knowledge of the *Ravil Starr* as authors and readers, and in the interest, to produce one of the most serious and amusing novels of the latter series which has ever been written.

The main theme carries the reader to join a batch of newly admitted novel editors who appear automatically before an automatically improve Board. The Board itself, from the President down to the humblest 'Yes Sirs', among its members represents a genuine description of novel making in both its best and its worst.

If the reader agrees to maintain which the author often to say that we compare the main group of young editors through the early days of their training editors and often the journey to the end of a number of successful years, many of whom the main theme makes and compares his experience. He will learn a lot about the modern story which is worth knowing. Because (perhaps) the various business of the story is found a story worth and interest.

Unfortunately for John Winton, his first novel has already established him in many future years of future which will be necessary for him to maintain the same standard and follow the same pattern. His new reading public will expect much of him, and this account for our little forward to a series of novels to follow the numerous suggestions which are found in the author's first statement. For instance the name of 'The Ravil Starr' must be left where it is. We look forward to his promises to 'The Ravil Starr' in some subsequent volume, in the same way as we shall want to hear of the fate of 'Comrade Oliver' that 'Comrade Oliver' Edition.

We are waiting to hear from you again, John Winton, and for the meantime of you will doubtless have to hear you have only yourself to thank.

J. L. S. C.

Measuring Resolving Capacity and Self-Organisation Ability by A. Chaitin and the explanation of the concept of Complexity is particularly apt.

On the whole the book is good value for money and one is confidently recommended both as an introduction and as a practical guide to the subject and very highly recommended.

J. S. F. K.

Proceedings of Administrative Services for Nursing Schools By H. A. Goldford
Pp. 100. World Health Organisation, Palais des Nations, Geneva. Available from
H.M. Stationery Office, P.O. Box 559, London S.E.1. Price 6s.

This publication is an interesting and valuable guide to Nurse Administrators.

The paragraphs on human relationships when organising nursing staff, the need for flexibility and the fact that nurses should be managed through subordinates are points, Munro and Deane, *Methods of Nursing Staff* would do well to accept for as the book says, "the raising of morale in the working group is more important than the imposition of a rigid discipline."

It was of interest to read that the old concept of discipline being exercised by the enforcement of a fixed unquestionable discipline should be replaced by discipline by consent with the emphasis on leadership rather than domination, permission to dissent from decisions, setting limits rather than imposing arbitrary orders and arrangements with those concerned before changes are made, all combined in a happy working staff and in a staff in an efficient establishment.

Master Medical Administrators of Seven Institutions will one day see their own eyes in words. The Philosophy and Techniques of Nursing Administration, said to hold across continents to a democratic level where highly qualified and experienced nurses who are specialists in their own field will be able to provide counsel of complete freedom to the staff and systems without loss of complete responsibility. It must be accepted that the ideal of an Institutional gets results through people and persons are persons first and then as workers and managers. Therefore the staff and managers should be a responsibility in administration in respect of staff management. As the system says, "The main difficulty arises because people are accustomed to accept orders as they are, and a result emerges in support such as total submission to a mind which is not which is in fact coping along satisfactorily for years."

Good Administrators must make every attempt that has been something has always been done. It is necessary to do it in doing it or if it is necessary that the way in which it is being done will be better.

Both in reading the review a paragraph from *A Philosophy of Administration* is the most basic.

When necessary for administering the work of the organization or part thereof should be able to compare and prepare for the changing needs of the organization. For example, the staff and system are not static, but are subject to a constant process of change and development. Consistent effective thinking and systematic analysis of the best ways to get an objective must therefore be pursued.

The technique or group of techniques can take the place of applying the principles of logic and reason's needed in the solution of administration and the approach should not be placed in the hands of administrators.

D. A. S.

The acknowledgments with thanks except of the following publications:

Acta Medica et Biologica, Alfred Hospital Clinical Reports, *Annals De la Faculté De Médecine Université de Montréal*, *Medical Journal of France*, *Annals of Tropical Medicine and Parasitology*, *World Medical Bulletin*, *British Medical Journal*, *Bulletin of the World Health Organisation*, *Bulletin of Tokyo Medical and Dental University*, *Chirurgia Hospitalis*, *Journal of the Royal Army Medical Corps*, *British Journal of Medical Sciences*, *Anaesthesia*, *International Journal of Chinese Medical Journal of Osaka University*, *Midwifery Hospital Journal*.

**WARDMASTER OFFICERS
RETIREMENT**

Wardmaster Sub-Lieutenant, W. E. Dwyer

**QUEEN ALEXANDRA'S IMPERIAL NAVAL NURSING SERVICE
PROMOTIONS**

To Major at Chart—Miss H. Moore, *A.R.N.C.* 1147.59.

To Principal Matron—Miss E. J. Smith, *A.R.N.C.* 1147.59.

To Senior Nursing Sister—Miss J. Robertson 1111.59; Miss N. B. W. Stephens 1111.59;
Miss A. C. Williams 1111.59.

TRANSFERS TO PLACEMENT LIST

Miss E. F. M. Newman, Senior Nursing Sister

ENTRIES FOR SHORT SERVICE

A. J. Crawford, *C. J. R.N.S.*; E. D. Longden, *P. M.B.S.*; F. E. Morgan, *M. A. T. M.*

TRANSFERS TO SHORT SERVICE

A. M. Pylant, *C. J. M.B.S.*

APPOINTMENT

Miss E. F. Cowley, *A.R.N.C.* *Q.A.R.N.M.S. (Ret.)* has been appointed (Act. Nurse),
Officer in St. John's Ambulance Brigade, Portsmouth Area.

ROYAL NAVAL MEDICAL CLUB

A reception will be held at the Royal College of Surgeons, Lincoln Inn Fields, on
Friday 10th October 1939, from 6-12 p.m. to 8 p.m.

NAVAL MEDICAL COMPASSIONATE FUND
STATEMENT OF RECEIPTS AND PAYMENTS FOR THE YEAR ENDING 31st DECEMBER, 1939

	£	s	d	£	s	d		£	s	d
Balance at Bank on 1st December 1938							Arrears to Widows and Orphans	650	0	0
Carriage Account	441	0	0				Orphan Assistance	30	0	0
Deposits Account	300	0	0				Auditors	1	0	0
				740	0	0	Purchase of £715 10s. 10d. 3d.11			
Dividend on 3½% Consolidated Stock	361	0	0				Funding Loan 1919/2024	450	0	0
Interest on 3½% Consolidated Stock	66	0	0				Change Bank		0	0
Interest on 4½% Consolidated Stock	40	0	0				Purchase of 100 Banknotes		0	0
Interest on 3½% War Stock	15	0	0				Stationery and Postage Receipts		0	0
Interest on 4½% British Electricity Stock 1919/20	11	14	0				Balance at Bank on 31st December, 1939			
Interest on 4½% British Electricity Stock 1919/20	12	3	0				Deposits Account	575	4	7
Interest on 3½% Funding Loan 1919/2024	7	3	0				Current Account	263	14	0
				587	18	10				
Rebate of Income Tax on 3½% Funding Loan 1919/2024					5	4				
Interest on Deposits Account					13	10				
Subscriptions					263	18	0			
Total of £540 9s. 10d. British Electricity 4½% Stock 1919/20					450	0	0			
				12,853	0	7				
								12,853	0	7

I certify that I have examined the above Statement of Receipts and Payments and found it to be correct, and in accordance with the books and records of the Fund and that all my requirements as Auditors 1938, 1939, 1940 are satisfied.

Certificates of the Balance on Current and Deposits Accounts at the National Provincial Bank Limited on 31st December 1939 as attached.

Notes standing at the Bank of England in the names of the Trustees on 31st December 1939 have been verified with the Bank Certificates held for safe custody by National Provincial Bank Limited.

Subscriptions received during the year ended 31st Dec 39 in respect of arrears for 1937 and 23 10 10d. paid on arrears for 1939.

One subscription of £1 10 10d. was paid on 1st December 1939 in respect of the year ended 31st Dec 38.

Signed Vice-Chairman: C. H. de la Motte, Esq.

Signed Secretary: J. G. de la Motte, Esq.

In addition to the above Cash Balance, Notes in the following amounts were standing at the close of Accounts at the Bank of England in the names of the Trustees:

£10,000	3½% Consolidated Stock
£1,950	3½% Consolidated Stock
£1,000	4½% Consolidated Stock
£1,000	3½% War Stock
£1,437 5s. 10d.	4½% British Electricity Stock 1919/20
£715 10s. 10d.	3½% Funding Loan 1919/2024

*Original Fund under Clause 3 of the Order in Council of 26th July 1918.

Discharged out of accumulated arrears and subscriptions.

Signed P. E. McIlwain,

Secretary (Pro-Adm.)

Signed Treasurer

31st Dec 1939

ADDITIONAL LIST OF ORDERS—1939

(The year is placed in italics)

- 7.—*Careers*.—*Surgeons*.—*General Training for Sick Berth Staff and Preliminary Work*.—*Oral Surgery*.—*Amputations*.
- 88.—*Medical Documents*.—*History*.—*New Issue of History List*.—1939
- 89.—*Medical—Vaccines*.—*Use in Ships Not Carrying a Medical Officer*.
- 126.—*Medical*.—*Air Transport of Sick Personnel*.
- 127.—*Medical—General*.—*Statistics of Endemic Typh*.—(4 new Bk. Nos.).
- 133.—*Medical—R. & F.*.—*Medical Rehabilitation Letter—Advances of R. & F.*.—and *R. & F. Personnel*.
- 136.—*Medical—R. & F.*.—*Medical Bulletin No. 7—Distribution*.
- 222.—*Surgeons and Agents*.
- 229.—*History*.—*Long Island N.Y. Convalescent Home, Obituary*.
- 271.—*Medical Documents*.—*History*.—*"Long Island Gazette" of 1935 January*.—1939
- 273.—*Medical Documents*.—*History*.—*Recommendations for Publishing History List*.—1939
- 303.—*Medical History*.—*Thompson's Adjuster R. F.*
- 376.—*Medical Service*.—*Sight measurements*.—*New method*.—*Replacement by Universal Type*.
- 380.—*Medical—General*.—*Medical—General No. 1*.—*Revised Copyright Text*.
- 404.—*Surgeons and Agents*.
- 428.—*Medical and Dental Service*.—*4*.—*Notes in Use*.
- 441.—*Medical*.—*Prevention of Diseases in the Service*.
- 443.—*Medical*.—*Leishmaniasis and Zoonosis*.
- 471.—*Surgeons*.—*Sick Berth Ratings*.—*Specialized Training and Laboratory Techniques*.—*Presented of How the Examination of the Ratings of Medical Laboratory Technicians*.
- 486.—*Medical*.—*General*.—*Appointments*.—*Advisory Council Staff and New Frontier*.—*Medical—General*.—*Appointments of Surgeons in the Service*.
- 490.—*Medical*.—*Long Island*.—*and Statistics*.—*Military Administrative Officers*.
- 504.—*Q. & A. N. N. N.*.—*Medical and Staff*.—*Appointments*.

General

FINANCE ACT, 1959

For some months negotiations have been conducted with the Commissioners of Inland Revenue with a view to subscribers to the JOURNAL OF THE ROYAL NASSAU ASSOCIATION having allowed tax relief on their subscriptions under the terms of Section 18 of the Finance Act, 1959.

It is our pleasant duty to report that approval has been obtained in accordance with the terms of the following letter which is brought to the attention of all our subscribers:

26th October 1959

Dear Sir,

I have to inform you that the Commissioners of Inland Revenue have approved The Journal of the Royal Nassau Association, hereafter for the purposes of Section 18 Finance Act, 1959, and that the whole of the annual subscription paid by a member who qualifies for relief under that Section will be allowable as a deduction from his emoluments, taxable as income tax under Schedule E. If any material relevant change in the circumstances of the society should arise in the future you are requested to notify this office.

I should be glad if you would inform your members as soon as possible of the approval of the society. The circumstances and manner in which they may make claims to income tax relief are described in the following paragraphs, the substance of which you may care to pass on to your members.

Commencing with the year to 31 April 1959, a member who is taxable to income tax under Schedule E in respect of the emoluments of an office or employment is entitled to a deduction from those emoluments of the whole of the annual subscription which is due and payable by him to the society in the income tax year provided that—

- (a) The subscription is defrayed out of the emoluments of the office or employment, and
- (b) the income of the society so far as they are directed to all or any of the following objects—
 - (i) the advancement or spreading of knowledge (whether generally or among persons belonging to the same or similar professions or occupying the same or similar positions)

(a) the maintenance or improvement of standards of conduct and competence among the members of any profession,

(a2) the indemnification or protection of members of any profession against claims in respect of liabilities incurred by them in the course of their profession,

as relevant to the office or employment, that is to say the performance of the duties of the office or employment is directly affected by the knowledge concerned or involves the exercise of the profession concerned.

A member of the society who is entitled to the relief should apply to his tax office as soon as possible for form PDS on which to make a claim for the relief due to him.

Yours faithfully,

(Signed) Senior Principal Inspector of Taxes.

Reports

CIVIL DEFENCE EXERCISE

BY

Sergeant Captain J. C. GENT, R.N.

On 9th April, 1959, H.M.S. *Ganges* held a civil defence exercise at West Tofts, a deserted Norfolk village.

Fifty lessons from the establishment, made up of repentant ex-servicemen, lent a touch of realism to the proceedings and, as typically April weather conditions alternating with showers throughout the day, much valuable experience was gained by everybody concerned.

THE SITUATION

It was assumed that a hydrogen bomb had been air-burst in a westerly wind over south Norfolk, with the object of penetrating the defences and retaliatory power of the group of airfields in that area. West Tofts, some twenty miles south of ground zero, had sustained damage commensurate with the distance and civil defence forces already fully occupied in dealing with the major damage closer to ground zero had requested *Ganges* to assist at West Tofts. For the purpose of the exercise and observing that the supposed bomb had been air-burst, the full-on problem was to be ignored.

THE TOWN

West Tofts, a small village of not more than a couple of dozen cottages, is about 5½ miles north-west of Braden on the Wymond—Swarston road and about a mile to the south-west of Beeston, another deserted village.

The one—hereafter referred to as 'The Pool of Wells'—the village school, and 'Jack's Store' are on the west side of the road and form the focal point of the village. A hundred yards north-east of them and on the opposite side are Hall Farm and its attendant outbuildings, while the church and rectory approached by an imposing horse entrance lie 200 yards west of the school. Close to the avenue may be seen the remains of a rectangular earthwork surrounded by a moat.

The village is situated in a wild and hilly region which forms the base of Breckland.

Breckland, or 'The Brecks', comprises about four hundred square miles of

thickly populated country in south-west Norfolk and north-west Suffolk. It extends from Northwold in the north to Clifton and Mildenhall in the south, while to the east are East Harling and Oulton Broad, to the west, Lakenheath and Fildesham.

The region north of Thetford, which includes West Toller, Stanfield and Tottington, is a remote hinterland, the home of all kinds of wild life. Though past a stiff under cultivation and a considerable proportion has been ploughed with courses by the forestry commission, it is mainly a battle pasture having been used as such by the Army, and the three villages already mentioned have suffered severely in the recent battles that have so often been fought among their ranks during the last eighteen years.

The nature reserve is of immense importance to the naturalist. Within six miles of Thetford, a hundred and twenty-six species of bird have been recorded, with at least three varieties of pheasant—the ordinary English bird, the black 'Melanopus Montani'—a species in its own right and not, as its name would seem to imply, a mutation—and the pale Chukar as well as the exotic Golden Pheasant, which was introduced from India many years ago by Prince Rupert Smith.

Coast and moorland abound in the vicinity of the marsh, and addstock, roach, plover and sandpiper all thrive. Of the ducks, golden mallard, shoveller, tufted duck and pochard are all to be seen and are known to nest there.

Berkshire Down, is of decided interest to the antiquarian. Nocturnal bat quarters, now everywhere and affording perfect cover for the pheasants, are widespread. Indeed, Grovers Gorge—perhaps the finest example of a woodland this name in England—is but two and a half miles from West Toller.

Three pedestrian footways traverse the area. They are the Island Way coming up from Wisbech across the Berkshire Downs and along the line of the Chetwode to the Norfolk coast, the Filders Way, a paved road running north and south, and the Drove, which is a local road running in an easterly direction from Sticksby to the Filders Way which is joined on Roughton Heath.

After crossing the river in Thetford, the Island Way divides into north easterly and north westerly branches, the latter approaching closely to West Toller before it runs through Stanfield.

So much for the problem to be solved and the terrain.

PRELIMINARIES

The Advance Party left Gauger by bus at 1915, reaching West Toller two hours later without incident.

Dinners were served at noon. Casualties were then made up in a mild rusticous fashion by Warminster Sub-Lieutenant Henslow and Sick North Chief Petty Officer Whitehead before being postponed.

The Third Echelon Support Party travelled in a conveyance made up as follows:

- | | |
|----------------|-----------------|
| 1 M-water tank | 1 motor vehicle |
| 2 ambulances | 1 three tonner |

Leaving the Commander behind to cope with a flat tyre, the convoy departed from Stotley at 1225 and made good progress so far as Thetford where at the very trouble by becoming noticeably jammed at a sharp turning in the middle of the town. Streets in Thetford are narrow and cobbled, sharp, so, for a time, it seemed that the convoy's further progress was ended for ever, but somehow—when it seemed nothing more could be done but to halt—the "All in Low" Forward. The drivers extricated themselves from the impasse and drove on to the residences where the mobile generators looked on and quietly placed them to the scene of operations which they reached punctually despite their misadventure.

THE EVACUEES

Promptly at 1445 the exercise started with the destruction of mobile houses at a number of the ruined cottages, while at the same time (to most painful ears) were to be heard from the trapped inmates, who had by this time thoroughly earned into the glare of the thing. So convincing indeed, were some of these screams that when—as happened in one case—Ray coasted slightly behind observers' houses so the victim's aid, fearful hot flames from the house had engulfed him.

Then Ray, however, passed groundless: the boy had passed for want of health and was soon yelping as loudly as ever.

In the meantime the Third Battalion Support Officer deployed his forces as follows:

- (a) Heavy Rescue Team and No. 1 MFAU to the Rectory
- (b) No. 1 Light Rescue Team and Mobile Sapper Unit to 'The Pool of Belts'
- (c) No. 2 Light Rescue Team and No. 2 MFAU to Hall Farm
- (d) Mobile Generator teams: 'The Pool of Belts' to supply power to the Army Unit
- (e) Barrage-buster Team to survey the village

Very soon the village became a scene of French activity—with casualties—some walking, some supported, others on stretchers—making their way to 'The Pool of Belts' and writing down lists, that its hospital doors had not closed in 1941 while the anxious watched cottages with their phantom windows and failure in such trouble to read with fearful insistence the scenes so familiar during the war.

"Harold Jack"—whose photograph is appended—showing that he had a broken ankle and was, moreover, a fire burner—could be seen at an upper window of the village store; his face wreathed in a broad smile. "Aggie Weston," the landlord's pretty daughter, lay on the floor in the upper story of 'The Pool of Belts', with a fractured leg and pelvis, tended by the personae 'Wilberforce Bishop' whose face and ankle had been furiously lacerated and nearly "Gillian Smith" the pupils of whose dark, unclouding eyes were—or ought to have been—solidly dilated with shock. (Surprised.)



FIG. 1.—Haven look at rubble.

But the Medical Surgeon that kindly established himself, soon brought them recovery and restored the victims to perfect health peacefully and pleasantly.

Old "Bill Jones" and "Mary Jones," suffering respectively from fractured skull and internal hemorrhage in their sweet little cottage No. 2 Kotten Row, posed a most problem for the first-aid parties—indeed, so ghastly was "Mary's" appearance, with chalk-white face and blood streaming from her mouth, that the boldness—even the Mission and the P.M.O.—hesitated at the sight of her, and a hardened first-aid sailor hesitated. It did turn my stomach! Rightly deeming that hemorrhage—and beauty—must take precedence over all else, the rescuers took her to the operating theatre, leaving her poor old father to his fate.

Greatly indeed were the signs in Hall Farm! No less than thirteen severely injured people were found there. Worse—one of them was trapped beneath the main—another under a heap of rubble.

Then on the rescuers' heels came the Oxford Photographer rubbing his hands with glee. "How sad ought to see somebody knocked out of a window!" he exclaimed. "That's the picture, I've been waiting for."

Aha! He was doomed to disappointment, for the rescuers lowered all the first-aid casualties down the stair well.

Then, by "however" and next to be tackled, lay poor "Ron Johnson" on the



Fig. 7.—The Lebbell House.



Fig. 8.—The Bridge.

bedroom of his coffin, with a finished shroud and a crucifix. A ladder rescue was the only method feasible in this case, so the photographer obtained his hero's desire.

Scenes in the rectory begged description as a glance at the photograph will testify, and it would be tedious to dwell longer on the problems encountered. Suffice it to say that much ingenuity had been exercised to make them as unscripted as possible, and equal resourcefulness was displayed by the rescue parties in solving them.

The exercise finished at 1400, and then it was the coffin's turn to show their cards. For at the very moment when they would have been most susceptible, the power, nerves without exception failed.

Not wearing a mask, the ingenious coffin made a fire of sticks in defence of the regulations, which expressly forbade such activities—but this was no time for transience—and he was truly before anybody except the ordering officers and his staff more intent that anything was done.

So ended an enjoyable and instructive day. Despite the somewhat light-hearted description of the exercise it would be wrong to assume that it was not carried out in all seriousness. Many valuable lessons were in fact learnt. The principal ones will be next discussed.



Fig. 2. Exercise staff position.

ANALYSIS

(1) *Cost* — Although setting this was well done, (initial) 1.5 minutes (plus 4.5) seems unnecessarily long for a doctor. At the meeting discussion, the stage set had allowed the importance of forward parties making contributions the spot, leaving the surgeons time to get on with their most complicated tasks.

On the other hand, observers noted an intelligent summing up of the case made by forward parties, whose decisions as to which team must have priority of treatment were usually correct.

(2) *Doctors* — All teams did good work. The main criticism was that they did not ladder out as many cases as they should have done—in particular a compound fracture of the right tibia and fibula, internal haemorrhage and a fractured spine in the patient's cotting, a fractured skull and haemorrhage and a fractured pelvis from the motor. The rescue parties were set up here over on the vehicles, by lowering casualties down the rear wall in Hall Farm.

The new case inflicted on, which has been described, was dealt with quickly and efficiently.

(3) *Mobile Hospital Unit* — Setting this unit as 'The Field of Battle' proved satisfactory. Instruments and materials appeared to be all that could be desired. The mobile generator, however, was not powerful enough.

A waiting room ought to have been established—in the event the saloon bus filled quickly with casualties, so that later ones had to be taken to the village school.

Time to set up the theatre was fifteen minutes—in a doubtful if this could be improved upon.

REMARKS

(1) A Civil Defence Exercise was held on 9th April 1958 by H.M.S. Gossington in a deserted village fifty miles from Shirley.

(2) Fifty doctors from the establishment represented medical aid.

(3) The trained castles were admirably suited to the purpose of the exercise.

(4) A brief description of the setting is included.

A CLINICAL TRIAL OF A NEW ANTHELMINTIC— DELOMIBIN (PFEIZER) BRAND OF DITHIAZANINE

BY

Sargam Chatterjee, J. GRABER, B.N.

A CLINICAL trial was conducted in the wards of the R. N. Anand Hospital, North Boro, Singapore, to assess the efficacy of Delomibin (Pfizer)—Brand of Dithiazanine as a broad spectrum anthelmintic.

All cases for admission to the hospital have a routine stool check as part of an entry procedure and such cases with positive stools, selected as suitable subjects, were given the new treatment. In certain circumstances where laboratory report is on out-patient clinic attendance showed a heavy worm infestation, these patients as well, were admitted to hospital for controlled treatment and follow-up procedure, to determine tolerance, side effects and efficacy of the drug.

Initial concentration for purposes of the trial was the selection of cases with mild worm infestation and thus those patients who had very heavy single helminth infestation noted in laboratory reports.

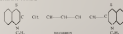
Clinic report forms and Delomibin capsules were supplied by Dr. Philip, P. E. Enli representative of Pfizer. The clinic report form was used for house records and further complete information about cases under review was extracted from the in-patient admission folder.

PHARMACOLOGY

Delomibin (Pfizer)—Generic name: Dithiazanine.

A synthetic dye where both nitrogen of the imidazole ring system are incorporated into heterocyclic rings.

(a) Structural Formula—



(b) Chemical Name and Action—3, 3'-Diethyl Thiodicarbocyanine iodide in an aqueous form is a blue powder, only slightly soluble in water.

Table 1. Summary of the data used in the study.

Variable	Unit	Range	Mean	SD
Age	Years	18-80	45.2	15.8
Gender	Male/Female	1/2	0.52	0.50
Education	Years	12-18	14.5	2.1
Income	\$/month	1000-5000	2500	1200
Marital Status	Married/Single	1/1	0.65	0.48
Health Status	Good/Poor	1/1	0.78	0.41
Exercise Frequency	Times/week	0-7	2.5	1.5
Stress Level	Low/High	1/1	0.55	0.50
Sleep Quality	Good/Poor	1/1	0.62	0.49
Dietary Habits	Healthy/Unhealthy	1/1	0.58	0.49

The data were collected from a large, diverse sample of individuals across various demographic groups. The variables measured include age, gender, education, income, marital status, health status, exercise frequency, stress level, sleep quality, and dietary habits. These factors are known to influence mental health outcomes, and their inclusion allows for a comprehensive analysis of the data.

The study utilized a cross-sectional design to explore the relationships between these variables and mental health. The sample size was sufficiently large to ensure statistical power and representativeness. The data were analyzed using advanced statistical techniques to identify significant correlations and trends.

The findings of this study provide valuable insights into the complex interplay between lifestyle factors and mental health. The results suggest that certain variables, such as exercise frequency and stress management, may have a more pronounced impact on mental well-being than others.

Table 2. Descriptive statistics for the variables.

Variable	Mean	SD	Min	Max
Age	45.2	15.8	18	80
Gender	0.52	0.50	0	1
Education	14.5	2.1	12	18
Income	2500	1200	1000	5000
Marital Status	0.65	0.48	0	1
Health Status	0.78	0.41	0	1
Exercise Frequency	2.5	1.5	0	7
Stress Level	0.55	0.50	0	1
Sleep Quality	0.62	0.49	0	1
Dietary Habits	0.58	0.49	0	1

Descriptive statistics for each variable are provided in Table 2. The mean and standard deviation (SD) values are shown for each variable, along with the minimum and maximum values. These statistics provide a clear overview of the distribution of the data and help to identify any potential outliers or skewness.

The data analysis revealed several interesting patterns. For example, there was a positive correlation between exercise frequency and mental health outcomes. Conversely, higher stress levels were associated with poorer sleep quality and dietary habits. These findings highlight the importance of holistic approaches to mental health care.

The study's limitations include the cross-sectional design, which cannot establish causality. However, the large sample size and comprehensive set of variables strengthen the validity of the findings.

Table 3. Correlation matrix of the variables.

Variable	Age	Gender	Education	Income	Marital Status	Health Status	Exercise Frequency	Stress Level	Sleep Quality	Dietary Habits
Age	1.00									
Gender	0.12	1.00								
Education	0.05	0.08	1.00							
Income	0.15	0.10	0.20	1.00						
Marital Status	0.08	0.15	0.12	0.18	1.00					
Health Status	0.10	0.12	0.15	0.22	0.10	1.00				
Exercise Frequency	0.02	0.05	0.08	0.12	0.05	0.15	1.00			
Stress Level	0.05	0.08	0.10	0.15	0.12	0.20	0.18	1.00		
Sleep Quality	0.08	0.10	0.12	0.18	0.15	0.25	0.20	0.15	1.00	
Dietary Habits	0.10	0.12	0.15	0.22	0.18	0.28	0.22	0.20	0.18	1.00

The correlation matrix in Table 3 shows the relationships between the variables. The diagonal represents the self-correlation of each variable, which is always 1.00. The off-diagonal values represent the Pearson correlation coefficients between pairs of variables. For instance, the correlation between exercise frequency and dietary habits is 0.22, indicating a moderate positive relationship.

These correlations provide a detailed view of how the variables are related to each other. The strength and direction of the relationships are clearly indicated by the values in the matrix. This information is crucial for understanding the underlying structure of the data and for identifying key factors that influence mental health.

The study's findings are consistent with previous research on the impact of lifestyle factors on mental health. The results suggest that interventions targeting exercise, stress management, and healthy eating could have significant benefits for mental well-being.

Table 4. Regression analysis results.

Variable	β	SE	t	p
Age	0.02	0.01	1.50	0.14
Gender	0.05	0.02	2.50	0.02
Education	0.01	0.01	0.80	0.43
Income	0.03	0.01	3.00	0.00
Marital Status	0.02	0.01	1.80	0.08
Health Status	0.04	0.01	3.50	0.00
Exercise Frequency	0.01	0.01	1.20	0.24
Stress Level	-0.02	0.01	-1.80	0.08
Sleep Quality	0.03	0.01	2.80	0.00
Dietary Habits	0.02	0.01	2.20	0.03

Table 4 presents the results of the regression analysis. The beta coefficients (β) represent the estimated change in the outcome variable for a one-unit change in the predictor variable. The standard error (SE) and t-statistic are also provided for each variable. The p-values indicate the statistical significance of the coefficients. For example, the coefficient for income is highly significant (p < 0.001), suggesting that higher income is associated with better mental health outcomes.

The regression model explains a significant portion of the variance in the outcome variable. The adjusted R-squared value is 0.45, indicating that 45% of the variance is accounted for by the model. This suggests that the variables included in the model are important predictors of mental health.

The findings of the regression analysis provide a clear picture of the relative importance of each variable. The results suggest that interventions targeting income, health status, and sleep quality could have the most significant impact on mental health.

Table 5. Summary of the findings.

Variable	Key Finding
Age	Weak positive correlation with mental health.
Gender	Significant positive correlation with mental health.
Education	Weak positive correlation with mental health.
Income	Strong positive correlation with mental health.
Marital Status	Weak positive correlation with mental health.
Health Status	Strong positive correlation with mental health.
Exercise Frequency	Weak positive correlation with mental health.
Stress Level	Weak negative correlation with mental health.
Sleep Quality	Strong positive correlation with mental health.
Dietary Habits	Weak positive correlation with mental health.

The summary of findings in Table 5 highlights the most important results of the study. Each variable is listed along with a key finding regarding its relationship with mental health. These findings are consistent with the results of the regression analysis and provide a clear overview of the study's conclusions.

The study's findings have important implications for mental health care. The results suggest that interventions targeting income, health status, and sleep quality could have the most significant impact on mental well-being. These findings provide a clear direction for future research and for the development of effective mental health interventions.

The study's limitations and strengths are discussed in the final section. The large sample size and comprehensive set of variables are strengths of the study. The cross-sectional design is a limitation, but the findings are still highly valuable for understanding the relationships between lifestyle factors and mental health.



The dye is fully adsorbed from the gelatin-activated cream (affigged) into solids, which were stained markedly blue.

Urine examinations of patients treated with heavy dosage did not show any excretion of the dye or other derivations.

In stool specimens the eggs of *Trichuris* and *Ascaris* were also heavily stained blue.

(c) *Therapeutic action* (1).—Crystalline dye inhibits the oxygen uptake by cells of certain worms and it is believed that the oxydase systems concerned with oxidative metabolism are inhibited. More than one system is involved, as high doses have not evidenced any inhibitory effect on metabolism of mammalian tissue slices, as on the activity of cytochrome C or cytochrome oxidase.

The worms that depend primarily on the aerobic pathways for physiology, i.e. *Ascaris*, *Trichuris*, *Clayton*, *Strongyloides*, respond to the antihelmintic properties of crystalline dye, specifically the metabolism and excretion system. It

TABLE II.—*Human Cases and Age Groups in Parasitic Conditions or Susceptible to Them*

Clinical group	Age					Total
	2-14 yrs	15-24 yrs	25-34 yrs	35-44 yrs	45-54 yrs	
Infants	2	4	5	4	4	21
Children	—	4	1	1	3	11
Infirmary	—	—	4	1	3	8
Physians	1	1	2	1	—	5
Students	—	—	2	1	—	3
Total	3	10	12	11	10	36

TABLE III.—*Number of Parasitic Glants, Intestine Worms, Pinworms, Pinworms and Acid Excretion or Secretion in Mammalian Excretions*

Age	Age					Total
	2-14 yrs	15-24 yrs	25-34 yrs	35-44 yrs	45-54 yrs	
No. of persons under investigation	3	10	11	11	10	50
No. with single infestation	—	5	3	4	5	17
No. with double infestation	3	4	5	5	3	24
No. with triple or more infestations	—	2	3	—	2	7

TABLE IV.—*Parasitic Infestation or Susceptibility to Acid Crystalline*

Infestation	Age					Total
	2-14 yrs	15-24 yrs	25-34 yrs	35-44 yrs	45-54 yrs	
<i>Ascaris</i> (single)	3	12	10	10	3	44
<i>Trichuris</i> (single)	3	5	10	2	5	25
<i>Ascaris</i> (double)	3	5	4	1	5	18
<i>Trichuris</i> (double)	3	5	4	1	5	18

Cases with double or more infestations noted as this table as separate single infestation

TABLE 5.—The results of the treatment of the 10 cases of *Ameloblastoma* by the use of the following treatment:

<i>Dose and period</i>	<i>Time of treatment</i>	<i>Discharge</i>	<i>Discharge effect</i>	<i>Discharge period</i>	<i>Time of treatment</i>	<i>Discharge</i>	<i>Discharge effect</i>
200 mg. i.d. x 3 days Total 600 g.	1	Discharge	Discharge	200 mg. i.d. x 3 days Total 600 g.	1	Discharge	Discharge
500 mg. i.d. x 3 days Total 1500 g.	2	Discharge	Discharge	500 mg. i.d. x 3 days Total 1500 g.	2	Discharge	Discharge
750 mg. i.d. x 3 days Total 2250 g.	3	Discharge	Discharge	750 mg. i.d. x 3 days Total 2250 g.	3	Discharge	Discharge
500 mg. i.d. x 3 days Total 1500 g.	4	Discharge	Discharge	500 mg. i.d. x 3 days Total 1500 g.	4	Discharge	Discharge
500 mg. i.d. x 3 days Total 1500 g.	5	Discharge	Discharge	500 mg. i.d. x 3 days Total 1500 g.	5	Discharge	Discharge
500 mg. i.d. x 3 days Total 1500 g.	6	Discharge	Discharge	500 mg. i.d. x 3 days Total 1500 g.	6	Discharge	Discharge
500 mg. i.d. x 3 days Total 1500 g.	7	Discharge	Discharge	500 mg. i.d. x 3 days Total 1500 g.	7	Discharge	Discharge
500 mg. i.d. x 3 days Total 1500 g.	8	Discharge	Discharge	500 mg. i.d. x 3 days Total 1500 g.	8	Discharge	Discharge
500 mg. i.d. x 3 days Total 1500 g.	9	Discharge	Discharge	500 mg. i.d. x 3 days Total 1500 g.	9	Discharge	Discharge
500 mg. i.d. x 3 days Total 1500 g.	10	Discharge	Discharge	500 mg. i.d. x 3 days Total 1500 g.	10	Discharge	Discharge

TABLE VI.—EFFECTIVENESS OF DIETHELMAN TREATMENT IN THE TRIAL WITH VARIOUS DOSEAGE FOR EACH OF THE THREE HELMINTH SPECIES

Total doses per cent	No. of cases	Ascarides		Trichostrongylus		Ascylostrongylus	
		No. diets and % cure	No. diets and % cure	No. of cases	No. diets and % cure	No. of cases	No. diets and % cure
1.0	2	1—50%	1—50%	1	1—50%	1—50%	—
2.7	3	1—33%	1—33%	2	1—50%	1—50%	—
3.0	4	2—50%	2—50%	3	—	3—100%	—
3.6	5	1—20%	4—80%	4	—	4—100%	—
4.1	—	—	—	2	—	2—100%	—
5.6	11	4—36%	7—64%	7	1—14%	6—86%	2—100%
6.3	4	—	4—100%	3	—	3—100%	—
7.1	2	—	2—100%	1	—	1—100%	—
7.4	—	—	—	1	—	1—100%	—
7.7	1	—	1—100%	—	—	—	1—100%
8.0	1	—	1—100%	1	—	1—100%	—
1.5	1	—	1—100%	1	—	1—100%	—

does not appear to be active against schisto-some worms, the Bithurina, presumably because of their anaerobic metabolic pathways.

(d) *Formulation for the Trial*.—Capsules were supplied in bottles containing 100 and each gelatine capsule contained 100 mg. of Diethylm, labelled "Compound C.T. (Lot No. 34-207-05 BPD Manufactured 13th April, 1958 U.S.A.)".

Procedure

Tables I to VI record the trial features and results on the 50 cases under review.

Diethylm

(a) *Former Trial Results*.—Clinical studies using oral dosage up to 600 mg. daily for five to twenty-one days in a series involving over 400 patients did not reveal toxic reactions—(tablets form given). Laboratory checks on adults showed no significant changes in the blood urea nitrogen group, haemoglobin, alkaline and total thyroxal metabolism, alkaline phosphatase values and prothrombin time [1].

In a clinical trial for Trichostrongylus, 164 adults were treated with oral Diethylm 500 mg. i.d.s. for five days—3.0 grammes and scored a 87 per cent cure rate [2].

(b) In an exploratory dosage study for Ascarides, 42 patients on the same amount of Diethylm, 200 mg. i.d.s. for five days—3.0 grammes, those who scored a 98 per cent—complete elimination of parasites and an a/cv reduction of 91 per cent [3].

Of 39 patients treated for Trichostrongylus, a mild ascylostrongylus infection was also present and with a total Diethylm treatment on each case of 3.0 grammes in five days, it was noted that cure was given in 98 per cent and allegedly reduced in the remaining cases. It is also treated with 200 mg. i.d.s. for ten days—5.0 grammes showed drops in a/cv results, but no clinical cure [4].

Sweetwater, *et al.* [1] using a Lilly and Company product of Delambon presented as 100 mg. enteric-coated tablets, noted the following results:

Trichuriasis—36 children given a total dose of 3.6 grams in five days or more showed a 98.2 per cent. reduction of ova counts and complete cures in 73 per cent. At similar trial, 364 patients were given 300 mg. i.d. for ten days—80 patients showed that the cure rate for five days' therapy was 97 per cent. and for ten days' therapy 100 per cent.

Ascariasis—37 children were treated with varying dosage of 30-300 mg. i.d. or 125-300 mg. b.i.d. for five to ten days and showed a result of 63 per cent. parasite cure and a 98.2 per cent. reduction of ova counts, with a majority occurring only five days of therapy.

(b) *Parental Trial Analysis*—Table I records the complete results of investigation of the therapeutic trial on 30 patients.

Table II records the ethnic and age groups of patients registered in the therapeutic trial. Of the 30 patients under investigation as selected cases, the ethnic pattern follows the population trend here, with Indian employees predominant.

Table III records the number of patients under investigation showing frequency and age grouping of single or mixed infestations. 14 cases had double infestations, 11 had single infestations and 5 had three or more infestations.

Table IV records the frequency distributions of worm infestations according to age groups. Cases with mixed infestations were noted, as well, in this table as separate single infestations. 30 patients showed 64 separate infestations and the frequency was Ascariasis, Trichuriasis and Ankylostomiasis in that order in the pattern of greater to lesser intensity. One patient (Case 26 in Table I) had intestinal Trichomonas as the fourth type in a mixed infestation.

Table V records the tolerance and side effects noted in this trial. Tolerance of Delambon therapy in the form of parentals seemed to become better the larger the daily or total dosage given. Side-effects tended to vary in the same manner and were present in approximately one-third of all cases.

Table VI records the effectiveness of Delambon treatment in this trial with varying dosage for each of the three major helminth infestations. Patients with mixed infestations were noted again in this table as separate single infestations.

SUMMARY

Ascariasis—44 infestations recorded. The response was favorable to this treatment by all methods of dosage over a total dosage of 3.0 grams in this trial.

Our results were an overall total of 75 per cent. clearance.

Trichuriasis—28 infestations recorded. The response was favorable, as well, by all methods of dosage over a total dosage of 2.8 grams in this trial. Our results were an overall total of 85.7 per cent. clearance.

Ankylostomiasis—12 infestations recorded. The response was not favor-

able to treatment by various methods of dosage or no dosage in this trial except for one patient (Case 24 in Table I) who showed a clearance on the 5th and 6th follow up stool check.

Our results were an overall total of 94.7 per cent failure of clearance.

One patient (Case 28 of Table I) who received a total dosage of 7.5 grams had a partial clearance with the fourth type, *Intestinal Trichostrongylus*. This individual responded to Dibutyltin treatment and was cleared on the second stool check.

Conclusions

Dibutyltin is an effective trichostrongyle for *Trichostrongylus* and *Anisakis*. It is advisable, however, that capsule presentation be replaced by an enteric coated tablet form and made available in larger dosage i.e. 300 mg., 600 mg., 900 mg., for each tablet. The enteric-coated dispensing routine for mass therapy would then be simplified.

Chemotherapy for mass attack against common intestinal worms is now feasible, and a purge of such infestations affecting over half the population of the East should be considered as present and future National Health programmes.

Acknowledgment is gratefully given to Surgeon Lieutenant M. W. Eldridge R.N. for assistance in evaluating clinical and laboratory methods, Dr. J. M. Platt of Platt Corporation, for arranging the supply of Dibutyltin. Sick-Birth Chief Petty Officer A. Truitt, for laboratory support, the Medical Officers, Ward and Officer Staff for their assistance in this trial and to the Medical Director-General of the Navy for permission to publish this report.

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A CLINICAL TRIAL IN SEA-SICKNESS WITH TRIFLUOPRAZINE (STELAZINE)

25

Surgeon Commander T. A. TURNHILL, R.N.(Retd.)

The final cure for motion sickness has not yet been found although the vomitocentric agents already in use usually afford a high degree of protection. Some drugs may be suitable for certain patients and not for others. It is also common to find that, in certain individuals, drugs which have previously contributed to their well-being, may not, sometimes to do so when taken on subsequent occasions when the patient himself has again been challenged by rough conditions at sea.

It is generally accepted that the stimulation of the vestibular apparatus, by linear movements is the prime factor in producing sea-sickness (Chen and Smith, 1955). There is also little doubt that stimuli reaching the vestibular portion of the cerebellum via the eighth cranial nerve are transmitted to the nodular vomiting centre (Chen and Smith, 1955). Other stimuli may not pass along this route as those e.g. from optic, visceral and psychologic sources which may also initiate vomiting. Whatever the initial cause the mechanism of the final event is probably similar.

Although some drugs may act by means of vomiting by depressing the chemoreceptor trigger zone or the vomiting centre, they may, will not protect the patient against sea-sickness. Many anti-sea sickness drugs have centrally acting anti-cholinergic properties (Stokes and Amato, 1954) yet many anti-cholinergic agents are ineffective as anti-sea sickness remedies.

The course of events at the onset of seasickness is well known. The patient begins to lose interest, stoops in himself and may begin to yawn, take deep breaths of air, and feel depressed. He becomes pale, headache develops and then nausea, salivation and frequent vomiting may finally lead to nausea and vomiting. This state may persist for a considerable length of time and some individuals may be over-sensitive and prone to it. There are many drugs available for treating seasickness. Hyoscine is often effective at the first dose but if repeated doses are necessary it appears to lose its efficacy, especially when rough conditions at sea persist. The dry mouth and mental depression may sometimes be due to the drug administered and as a rough do not overburden the patient's condition. Some drugs which produce drowsiness are quite effective against sea sickness. This, however, is not always a beneficial factor if the patient has duties to perform because drowsiness may seriously interfere with the standard of work efficient.

Dizziness, drowsiness and general weakness are often produced by drugs and, if given prophylactically, although they are effective they may be contra-indicated because of these reasons. Ledner and Isbana (1954) have shown that promazine was valuable as a prophylactic but the side-effects in patients who had to continue their datus may limit its usefulness. Once the patient was unable to continue, according to these investigators, were not as effective as when given prophylactically. Preparations such as phenothiazine, butaleryl, dronamine and mazine are effective in about two-thirds of the patients who would ordinarily have vomited if they had been given a placebo.

An ideal antiemetic-drug should stop the nausea and vomiting but should not at the same time prevent the patient from fulfilling his duties because of the onset of drowsiness and dizziness which might possibly have been the result of the given drug. Amongst various new preparations available for trial a phenothiazine derivative, 'Sedazine' (*Sedazine*)¹ has been tested as an anti-nausea drug. Pharmacological screening tests have shown that when animals are given 'Sedazine' and then challenged with apomorphine 'Sedazine' is about 8 to 10 times more potent than chlorpromazine in preventing the onset of vomiting. 'Sedazine' rarely reduced the blood pressure when given as a strong therapeutic dose, presumably because it has practically no adrenergic blocking effect. 'Sedazine' will apparently prevent nausea and vomiting in a variety of conditions but its action on human nausea-propensity from the substance of this effect is controversial.

Methods.—*'Sedazine'* was available as 1 mg. tablets and ampoules and has been used in this investigation primarily as a therapeutic agent rather than as a prophylactic measure. It is already in general use for the treatment of psychotic, neurotic and psychotic patients. The dosage suggested for the treatment of psychomotoric patients, and for those suffering from sea sickness, should however, not exceed 1 mg. at twenty-four hours and the undesirable side effects associated with all phenothiazines were thus not to be expected. The usual procedure with 16 volunteers was to give tablets about the patient complained of being unwell and these were repeated at one to eight-hourly intervals as required. When patients were unable to take the tablets because of vomiting, in which the vomiting precluded the retention of the tablet, intramuscular injection was performed. As soon as the patient was able to take the tablets by mouth, the oral method was preferred and continued.

Results.—53 patients were reexamined and 58 were fit and well within thirty-six hours of starting treatment. Patients of all ages and both sexes were treated. The sea sickness has always been casual when patients were treated and in almost every case the patients recovered completely even though the weather conditions were still maintained. Of the 53 patients 53 had been given not more than 1 mg. 'Sedazine' for forty-eight hours. The average total intake of tablets for all the patients was 6 mg.

The efficacy of the tablets was assessed by the cessation of nausea and vomiting, by the patient's appreciation of the weather conditions, and by the

comments of the patients themselves who were able to compare "Scalzone" with previous preparations they had already taken on other sea voyages. 16 patients were satisfied that "Scalzone" was the most effective of all the drugs they have previously taken. 8 patients reported that "Scalzone" was as good, but not better than other drugs they had used. A small number 4, preferred other preparations to "Scalzone."

Side-effects.—There were no side effects due to the drug. There were no reports of drowsiness, persistent dry mouth, weakness, burning of nose or mucous-membranes. There was no complaint of headache, dizziness, nausea or irritation of the gastro-intestinal tract. There is usually no follow-up in patients taking non-sedative compounds, but there is every reason to believe that with the doses employed, no undesirable effects were produced.

Discussion.—The treatment of patients in this trial was entirely therapeutic. No attempt was made to evaluate "Scalzone" as a prophylactic measure although the writer feels that when to prevent the onset of sea-sickness may well be avoided. Of the patients treated almost all were well enough to continue with their duties, to enjoy themselves if they were passengers, within twenty-four hours of the beginning of treatment. 3 female patients failed to respond to treatment while on conditions were still rough. These 3 patients were pregnant and this may have been a complicating factor. It is rather interesting, because on viewing of pregnancy "Scalzone" has been observed, and has been shown to be, of distinct value. It is difficult to explain why the complicating factor of pregnancy should have interfered with the therapeutic effect of "Scalzone." There is no doubt, however, that "Scalzone" is a potent anti-emetic. There is also little doubt that the degree of suffering and petechial rash in individuals and possibly there may be a racial bias in the response of patients to weather conditions at sea. In Eastern waters it has been my experience that some Asiatic travellers respond to sea sickness by generalized pruritus more readily than do individuals from the Western countries, although, of course, climatic conditions are seen in sensitive people of all races. The results after giving "Scalzone" permit me to note, however, that Asiatic patients respond much more favorably to "Scalzone" than I had noted with other drugs, although, of course, this is a clinical impression and must be substantiated with further experience of this drug. The lack of drowsiness is a great advantage, particularly in members of the crew, and the rapid return to normal in every way is most gratifying to passengers at sea. "Scalzone" is certainly a potent and effective anti-emetic/nausea agent and deserves a wide reputation of these properties.

Summary

- (1) 43 patients have been treated at sea for sea-sickness with "Scalzone."
- (2) The results show that "Scalzone" is a potent anti-emetic especially useful for sea-sickness.
- (3) The lack of side-effects in the dosage used, especially as regards the lack

of development makes "Behavior: a most useful pay question for both prevention and cure."

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I wish to thank Messrs. Smith Kline and French Laboratories Limited for the generous supply of tablets for the trial.

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TRIFLUOPERAZINE (STELAZINE®)—A REVIEW OF RECENT WORK

87

Sergeant Commander W. CULLEN, R.N.

In recent years the great advances in psychiatry and the treatment of mental disorders have evoked a considerable amount of pleasure and gratitude amongst psychiatrists, the mental health services and general physicians. The concept of the mental asylum has been radically changed and a more humane outlook towards the mentally detained has developed concomitantly with the successes in therapy achieved by neuropharmacologists. It is not enough today that we should diagnose mental disorder—diagnosis has improved too—but we should attempt to return to normal life and useful employment persons who have had to be admitted to hospital. The treatment of mental patients cannot be considered any more entirely as the prerogative of the psychiatrist. Many patients can now be treated at home without hospitalization. Many other patients, and the number grows daily, will be usually treated in mental hospitals and the treatment continued by the general practitioner on a domiciliary basis. This radical change has taken place only in the last few years. It is basically due to the development of drugs which, even though they do not cure, are able to return patients to their homes and to useful employment and thus relieve the pressure on that group of hospitals which, in this country has been semi-permanently occupied by long-stay patients in some cases from twenty to thirty years.

Before the advent of psychotropic drug therapy, mentally disturbed patients had been treated with a range of drugs which was of little value and often only achieved results by reducing the mental activity of patients almost to a state of apathy. Physical methods of treatment, such as insulin coma treatment and electroconvulsive therapy were a major advance and valuable results followed the introduction of these measures. The scope of these forms of therapy is limited even though cardiovascular experts continue to be published. It is only with the discovery of the tranquillizing drugs that any real advance has been made in the treatment of patients and in increasing the chances of enabling them to be discharged from hospital. The tranquillizing drugs have a very wide use and it is now known that, by manipulation of dosage, both psychotic and psychosomatic patients can derive substantial benefit when these drugs are properly and adequately prescribed.

Risopercol, was one of the first of a group of drugs to which this title. In India its use had been thought of for centuries, but the precise, and scientific approach of the Western world has enabled Risopercol to take its place as a valuable drug for the treatment of mental disorders. Risopercol has now been used for several years and has survived intensive trials. It is an unexplored sea. An alkaloid, it is derived from the root of the plant *Samolida verpema* and is valuable for the treatment of various types of mental disease, apart from its other uses in cardiovascular conditions. Unfortunately Risopercol acts slowly and the patient's responsiveness may not be evident for several months after starting therapy. Experience has also shown that it should be reserved to a group of carefully selected patients where no value has been clearly determined because, among its side effects which may be troublesome, it tends to precipitate a type of depression which may produce suicidal tendencies.

Chlorpromazine and prochlorpromazine are members of a group of compounds known as phenothiazines. Chlorpromazine was the first of this series to be widely used and its success, which continues, has led to the development of a great number of other phenothiazine derivatives. The phenothiazines are divided into compounds such as chlorpromazine, or *aperazine* compounds, such as prochlorpromazine. However (1958) has remarked that, thus, will be general agreement that the rapidly acting *aperazine* compounds are probably the more effective drugs. A phenothiazine derivative, Trifluoperazine ('Salfazine') is one of this latter group which has been developed in the last few years, and various reports both in Britain and abroad show that this drug must be accepted as an important advance in therapeutic psychiatry. Freyhan (1959) has reported that 'Salfazine' is probably the most potent of all the phenothiazine derivatives, but happily it does not have some of the inconvenient and undesirable side effects of chlorpromazine. Madsen et al (1958, 1959), Madsen and Weiss (1959) have published their results on the use of 'Salfazine' in the treatment of schizophrenia, both acute and chronic.

Madsen and his co-workers treated 60 patients with 'Salfazine' and concluded that it is a powerful drug which has a considerable beneficial effect when given to chronic psychotics. Hallucinations and delusions in chronic states responded dramatically to treatment. 11 patients out of 50 who suffered from hallucinations improved satisfactorily, 9 were slightly improved and in 8 there was no change. These findings are apparently in accord with what has already been published on 2 of the most troublesome symptoms in chronic schizophrenia. 17 out of 25 patients who were withdrawn and apathetic showed satisfactory improvement, whereas only 6 could not be regarded as satisfactory. In thought disorder 24 out of 25 patients were much improved and only in 8 were the results equivocal. Such results must be regarded as most promising.

In a later publication Madsen et al (1959) considered that the employment of intramuscular injections of 'Salfazine' with subsequent administration of tablets by mouth produced encouraging results in acute schizophrenia and

the rapid improvement is so striking that the author's normal procedure is to treat all acute schizophrenics by this method. Macdonald and Watts (1959) observed that the capacity for social living in acute and chronic schizophrenics was markedly improved after the administration of "Sulzerin" and that this method of treatment was preferable to that of insulin coma in acute paranoid schizophrenics. Oakley (1959) treated 17 chronic schizophrenics of the most deteriorated type. Some were paranoid, some were catatonic, but all showed a complete lack of social contact with fellow patients, nurses, and relatives. The disease had lasted for periods from six to thirty-four years and most of the patients had been maintained on chlorpromazine or Reserpine up to the beginning of the trial. After five months' observation of these patients 11 out of these 17 deteriorated individuals were able to form social contacts in the course of improving their appearance and habits, engaging in occupational therapy and being taken home on leave by relatives. Oakley considered that "Sulzerin" was a valuable drug in the management of chronic schizophrenics.

With increasing knowledge of the efficacy of "Sulzerin" one must conclude that it is a potent drug and if further work confirms the earlier findings it should come to be accepted as a valuable drug for the treatment of both chronic and acute schizophrenics. Not enough is known yet, however, particularly in the acute schizophrenics and we must await further reports before coming to a definite conclusion.

In other aspects of mental illness, "Sulzerin" seems also to have a place. Kropach (1959) has published his account of its action on senile agitated patients. This is a problem in geriatric medicine and with the increasing age of the population there will obviously be increasing scope for the treatment of the senile agitated patient in manic, paranoid and depressive states. Kropach showed that 12 out of 13 senile patients in a manic state responded satisfactorily to "Sulzerin" therapy. 5 out of 9 paranoid patients were rapidly brought under control but 3 patients suffering from depression were unaffected by treatment. The treatment of senile patients is a problem which is steadily growing and these results are at least encouraging.

In the problem of psychomotoric the effect of "Sulzerin" is even more pronounced as there has been little published on this matter as yet. Goertts (1959) has, however, reported promising results. In a series of 135 patients suffering from a variety of nervous symptoms 71 per cent showed marked symptomatic relief.

These results are encouraging but further work on this subject will be necessary for fuller evaluation of the drug. It is understood that this is under way at the present time and it is hoped that these studies will confirm the first favorable impression of "Sulzerin" in the treatment of nervousness.

The side-effects of phenothiazine derivatives are now well known. In "Sulzerin" treated patients there are favorable reports for at more than 11,000 treated patients no peculiar side-effects encountered. Blood dyscrasias have not been reported and although there have been several cases of mild dermatitis as a toxic response this has been negligible. Nausea will have

also not developed delirium in some cases, which we have often seen with chlorpromazine. Extra-pyramidal symptoms are common. Forrester (1954) observed that in her small series of acute extra-pyramidal symptoms were marked. Medhurst *et al* (1955, 1959) Milligan (1959) and Macdonald and Watt (1958) have considered that the production of extra-pyramidal symptoms is not a problem with the use of 'haloperidol' provided the dosage is administered with caution and understanding. Gellay (1959) remarked that, contrary to the findings of Forrester side-effects were not troublesome. They were mild and easily controlled and in no case was it necessary to discontinue the drug. Thus too was the importance of the previous three investigators. One must repeat all phenothiazines with proper respect. The occurrence of side-effects, and particularly the extra-pyramidal syndrome, may be an inescapable part of therapy. But they can be prevented and do not constitute a contra-indication to treatment.

To summarize, the present position would seem to be that 'haloperidol' is a drug which has amply proved its worth in the treatment of psychotic patients. The many reports are all agreed on this point.

More work is, however, required before the full implications and significance of the drug can be fully evaluated. In particular the long term effect of the drug on chronic psychotic patients and the persistence of the improvement among neurotics require further study. This does not, however, detract from the known value of the drug.

In conclusion I wish to thank Messrs Smith Kline and French Laboratories, Limited who have very kindly placed at my disposal the reports on many clinical trials of this drug.

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EYE INJURIES

BY

Sergeant Commander F. BOWENELL, R.N.

Injuries to the eye may conveniently be classified under the following—(1) injuries to the lids and lacrimal apparatus; (2) non-perforating injuries to the anterior segment of the eye including burns; (3) injuries to the cornea of the eye without perforation; and (4) perforating injuries with and without the entrance of a foreign body.

Enquiry should always be made in any case of eye injury as to the possibility of a foreign body having struck or entered the eye. Where, such a history is obtained, it is important to have information as to the nature of the foreign body. A history from a child should be taken for if any of these have performed the eye, their removal will depend upon their position in the globe. If removal is impossible the structure of the eye will be influenced by the nature of the foreign body.

The examination of an injured eye should be carried out systematically and an attempt should be made to assess the extent of the injury in terms of the above classification. The most important question is whether or not the eyeball has been perforated for the prognosis may then be seriously affected. This difficulty is arising in a typical assessment are often considerable. Single laceration of a lid may be a strong pointer to the violence of the trauma, and therefore to underlying damage to the eye, but parents are occasionally seen in ophthalmic clinics several months after a trivial accident where the only indication of a perforating injury is a small hole in the iris. This emphasizes the importance of the systematic examination of the various structures of the eye and by now perforable with some magnification such as an ophthalmic loupe. In the preliminary examination a record of the vision from only of the injured eye but also of the sound eye should be made. While most eye injuries are regarded as serious, these gravity increases when the uninjured eye is found to be "busy" or the seat of previous disease.

In all cases where perforation of the globe is suspected, where intra ocular structures have been damaged without perforation, or where a wound has been sustained the case should be referred to an ophthalmic specialist without delay.

INJURY TO THE LIDS AND LACRIMAL APPARATUS

Lids.—Wounds of the lids may cause disfiguring scars, leading to eversion of the lid margin (entropion) and/or important complications. Vertical

wounds, especially those involving the whole thickness of the lid are most likely to produce serious scarring than horizontal wounds running in the direction of the orbicular fibres. Caution with coagulation, while not in themselves serious, may mask underlying intra-orbital damage.

Doing to the capacity of growth of conjunctiva the deepest layer of lid wounds should be sutured within twenty-four hours. An attempt should be made, after cleansing with antiseptic lotion, to restore the continuity of the lid by suturing with fine epithelium needles and number 9 black silk. The tarsal plate and orbicularis muscle should be sutured separately. The abundance of skin on the lids facilitates sutured repair.

Lachrymal Apparatus.—Wounds of the lachrymal canaliculus demand the greatest care and lead to epiphora. Their repair even in the hands of competent ophthalmic surgeons, is extremely difficult and frequently unsuccessful in restoring patency. If the two cut ends of the canaliculus can be recognized and confirmed by passing a fine probe through the punctum into the lachrymal sac, an attempt at suture should be made.

Now, re-examining, because to the American Schooler or two, five,

Foreign Bodies.—The commonest minor injury is the lodgment of a small foreign body on the surface of the eye. The foreign body may be found lying upon the cornea or conjunctiva, but not infrequently it is found in the subconjunctival space where the upper lid has been everted; a membrane which should always be turned out when the history suggests the entry of a foreign body.

Eversion of the upper lid is best effected by the operator fixing the patient. A glass rod is placed at the upper border of the nasal plate, the patient looking down. The eyelashes are then held, and the eyelid drawn upwards and then rotated upwards, using the rod as a fixed point. The co-operation of the patient in looking down throughout the manoeuvre is essential and it is difficult to proceed if the eyes are not depressed.

Correct foreign bodies such as injury and particles of carbon from kerosene lamps to be on the corneal epithelium, whereas small metal splinters from hammering, chipping, and like work are more likely to penetrate into the corneal substance. Superficial foreign bodies give rise in more dangerous than deep ones on account of the anatomical arrangements of the corneal nerve-endings. It is therefore important to treat the cornea with some magnifying lens in order to determine the depth of penetration of the foreign body. Extremely small foreign bodies may be shown up by placing a drop of fluorescein in the eye and washing it out with sterile water. The area denuded of epithelium shows yellowish green and is easily recognized.

Foreign bodies must be removed from the cornea as soon as possible because of the intense pain and irritation, and also the danger of infection from exposure to the unprotective sac, with subsequent ulceration. Those lying on the lower fornix or in the subconjunctival space may be removed easily by wiping with a pledget of cotton-wool on a wooden applicator after eversion of the upper lid in the case of the subconjunctival.

Foreign bodies from the conjunctiva are frequently freely dislodged (Fig. 11) and should be irrigated with normal hydrochloric 4 per cent. 1 drop eye drops suffice for quarter of an hour. If the eye is red, discharge profuse, and if 1:1000 should first be instilled. A needle such as a drawing needle or hypodermic needle should be flamed, and used to pick out the foreign body. It may be necessary to strip off a small piece of adherent conjunctiva with a pair of sharp pointed scissors.

Removal of a corneal foreign body is effected after instillation of a local anesthetic as described above. The operation is best performed with the patient on an operating table where the operator can rest his arms on either side of the patient's head, thus exercising more control over the fine digital movements required. The patient's eyelids are held gently apart by the operator's left hand, or by an ophthalmic speculum. A good light is focused on the eye. Removal should be attempted with a sterile blunt spatula first, if the foreign body is lying superficially on the epithelium. If it has penetrated the coherence of the cornea, it will be necessary to use a sharp needle.

Great care must be taken in the choice of a sharp needle. Frequently, such a needle after verification on special examination becomes converted into a spatula. The point may be reworked, thus making removal extremely difficult and producing extensive and unnecessary corneal damage. A metal rod about 2 in. in length, bevelled at one end to take a hypodermic needle is the best instrument to use. It can be made easily and quickly by any metal worker. It enables a new needle to be used on each occasion, the long shaft, resting between thumb and index finger, answers for necessary movements.

When a foreign body is adherent to the superficial substance of the cornea it cannot be picked out. It must first be separated from the surrounding tissue using the point of the needle as a cutter. Emory or steel particles usually, leave behind them a small foreign rust stain. This should be left for two days and then removed, after instillation of normal hydrochloric 4 per cent. by working a rounded dental bone gently between the fingers, allowing the burr to pick up the rust stain as it rotates.

It is important to maintain the use of the foreign body for any evidence of greyish whitishness or ulceration. If these signs are present, as if the wound is massive, atrophic and an abscess such as *Neisseria* should be instilled, and a pad and bandage applied. As a contact an antibiotic ointment, silver should be instilled, and the eye covered with a pad and bandage. A careful watch must be kept for any evidence that the wound has become infected.

Deep corneal foreign bodies are extremely difficult to remove, and the danger of perforating the eye may be considerable. Such cases are best left to the Ophthalmic Specialist to deal with.

Burns—Burns from acids, alkalis, sodium sulphide powder or petrol may cause serious damage to the cornea, and to sight in addition to obliteration of the lens and by contracting scar tissue. Thermal burns from hot sand or candles do less damage owing to the protective effect of the moisture in the conjunctival sac. Alkali must move through the rods coming to their

more marked effect on the corneal epithelium, the rapid removal of the corneal tissue and rapid penetration into the anterior chamber when the cornea is incised into. Wrong treatment is particularly harmful and can cause removal of the cornea.

While there may be an intense reaction in the eye after the accident, with dense conjunctival reaction and chemosis the cornea may look clear. It is therefore essential to instil a drop of fluorescein washing out with distilled water before corneal damage can be demonstrated. Subsequent perforations may take place as corneal ulcer may develop or a dense white scar may form destroying sight.

First aid treatment of corneal lacerations should be initiated immediately after the accident and is most important. Two other valuable aims is lost in the search for and preparation of an antidote. The eye should be irrigated at once with tap water. This can be poured gently from a clean cup, the lid being held open somewhat forcibly to overcome the spasmotic spasm. The irrigation must be continued for some time in order to wash away any toxic causes, which may be lurking in the conjunctival sac. A simple copious of water is sufficient.

When the patient reaches the sick bay any remaining traces of acids may be removed by irrigation with 5 per cent. loose soda bicarbonate or by loose and loose in the case of alkalis.

Lacerations are complicated by the presence of solid particles of lime on the cornea, conjunctiva and in the laceration. The eye should be immobilized by application of cocaine. All particles of lime must be removed with forceps. A wooden applicator covered with moistened cotton wool should be swept round the laceration to remove particles which have lodged there. The eye should be irrigated with 0.5 per cent. solution of sodium borate.

In all cases of extensive lacerations cocaine 1 per cent. must be applied and ephedrine ointment liberally applied. The use of ephedrine in lacerations is most potent in reducing the inflammatory reaction and preventing closure of granulation tissue. This is the only contingency where cocaine should be used in ophthalmology, except in the absence of operative guidance.

Ectopia lentis is an intra-lacer lacer in the region of the muscle producing ectopia in the red and cone layer and lacer a little less pigmentation. Sight is inevitably altered, and treatment is of little avail. The prognosis should be guarded.

INJURY TO THE CORNEA OF THE EYE WITHOUT PERFORATION

Injury from blunt instruments may affect every tissue under structure. The subsequent changes may be delayed and progressive. The injury is usually of the cornea except lacer. Systematic examination of all the structures of the eye, one by one, and from before backwards, is the only safe method of accurate assessment of damage.

Cornea.—The cornea may suffer an abrasion which can be demonstrated by application of fluorescein. It is accompanied by pain, watering and spasm.

of the bulb. It should be treated with only drops, and if not full healing for a few days. The staining with fluorescein will show whether healing has taken place, but the possibility of infection and subsequent ulceration should always be kept in mind. This will be indicated by increase in redness and pain, together with gray exudation at the site of the abrasion. Such abrasions may break down with a month later, developing into iritis and cataracts.

Delicate gray intercalating lines may be seen in the substance of the cornea. Blood staining of the cornea may occur, indicating a serious condition of raised pressure, together with haemorrhage into the anterior chamber.

Eye.—The effect of severe trauma on the eye is usually to cause the pupil to contract. Subsequently the pupil dilates and becomes immobile. The iris itself may be torn at its free margin, across its substance or a radiating ciliary or at its attachment to the scleral body. In the latter case a black, lacinated area is seen at the periphery, which gives a red reflex similar to that of the pupil when seen with the ophthalmoscope. Atropine and rest are fed and indicated, except in the case of radiating tears when atropine should not be used.

Lens.—At this stage of the examination the depth of the anterior chamber should be measured, and a comparison made with that of the other eye. An unusually deep anterior chamber will immediately direct attention to the lens, or to its absence resulting from dislocation. The lens may be dislocated as a result of injury. Dislocation backwards into the vitreous, when the lens usually becomes opaque, may be seen with the ophthalmoscope as a pale yellow disc, which has sunk to the lower part of the globe.

Forward dislocation into the anterior chamber is sometimes difficult to recognize in the early stages when the lens is still clear. Its appearance has been likened to a globule of oil with a golden rim on oblique illumination. An anterior dislocation results in an intense iridocyclitis and loss of the vitreous pariesis (secondary glaucoma) unless the dislocated lens is speedily removed.

The lens may also suffer subluxation—or displacement laterally in which case the eye, at the site where it is unsupported by the lens falls back, giving a deep anterior chamber at that point only. Ophthalmoscopic examination, after dilation of the pupil with fern drops, shows the center of the dislocated lens as a black shaded line. Lack of support to the iris causes a fine tremulousness of that structure on movements of the eye, and hence, therefore, is easily recognizable indication of damage.

Luxation of the lens into the anterior chamber should be regarded as an emergency requiring specialist treatment at the earliest possible moment, if the eye is to be saved. Neither atropine nor mydriatics should be used, as an alteration in the position of the iris may aggravate the tendency to a rise in intra-ocular pressure.

Subluxation or luxation into the vitreous body or their shed fragments, iridocyclitis, and loss of intra-ocular pressure. Observation should therefore be directed to detecting the onset of these complications. The patient should

be under specialist care as soon as possible, but in the interval diuretic and miotics may be used to control rise in intra-ocular pressure. Dantrolene is a drug of the calcium-antagonist group which may be given intravenously intramuscularly or as tablet form. Recent work suggests that its action is potentiated by potassium bicarbonate. I prescribe three times a day.

Injury to the lens may also produce a traumatic cataract. Frequently of the rosette type. This can be demonstrated with the ophthalmoscope by putting up a +10.0 or less in the measurement, and gradually approaching the eye from a distance of about 12 in. The opacities when in focus will show up black or grey against a red background. No immediate treatment is indicated unless the lens swells rapidly, and causes a rise in intra-ocular pressure, when surgical measures to relieve the swollen lens are necessary.

Pituitary and Choked—Vitreous haemorrhage may occur as a result of contusion. When it is severe the red reflex seen on ophthalmoscopic examination may be lost, the pupil appearing black. The choked may become reaptured. Its appearance is usually obscured by blood initially, but as the course of time the lens appears as a curved white crescent, rimmed with the optic disc, and not far from it. The retinal vessels may be seen passing over the white crescent, whose edges later become pigmented. So long as the macula is not involved, vision is only slightly impaired. Atropine should be instilled and the patient kept in bed.

Retina—The two main effects of contusion on the retina are detachment and commotio retinae. Mild injuries can be accepted as causes of retinal detachment, and while this may occur in perfectly healthy eyes, it is more likely in eyes predisposed to detachment by retinal atrophy or vascular changes. The subject of retinal detachment is too extensive to be dealt with in this chapter, and reference should be made to the various short textbooks on ophthalmology. It is, however, worthy of comment, that while deep detachments are not difficult to diagnose, shallow detachments are often difficult to distinguish, and descriptions of the retina at an early detachment are frequently missed by failure to examine the periphery of the fundus. The pupil should be dilated and the fundus examined with the greatest care, with special attention to the periphery. It is important that all areas of the retina should be clearly seen. If any part gave "out of focus" plus lenses should be put up in the ophthalmoscope, and if clear delineation is regained, suspicion of detachment must be borne in mind. The altered colour of the retinal vessels is a darker hue as they pass over a detachment in a radial sign, the most experienced examiner may be able to detect a fine hazy, cloudy appearance of the detached retina. The immediate treatment is the institution of atropine and complete rest in bed.

Commotio retinae is a condition of retinal oedema, usually but not necessarily, seen at the posterior pole as a hazy white area, which, after absorption, results in some permanent damage to the retina and to vision. The condition should be treated by atropine instillation and rest in bed.

Transient Glaucoma—Finally a condition of traumatic glaucoma may

develop in an eye which has suffered a non-penetrating blow without visible injury to the ocular contents. This condition may appear immediately after the injury or several weeks later. It is therefore important in such injuries, when examination has disclosed any ocular damage, to re-examine the patient periodically by evidence of redness of the eye or eye at distance which can be noted by digital palpation and compared with the sound eye. The standard treatment is with rest and darkness.

PERFORATING INJURIES WITHOUT RUPTURE OF PERIORBITAL BONES

The treatment of perforating injuries may be complicated by three factors additional to any damage caused by the injury and it is well to have these factors constantly in mind throughout treatment. Infection may be introduced into the globe, which is an excellent culture medium. A traumatic iridocyclitis with much condensation into the anterior chamber is common and may occur after the eye has recovered from the injury. It may be characterized by exudates and adhesions leading to eventual blindness. Finally any perforating wound may result in the development of strabismus in the sound eye—the condition of sympathetic ophthalmia. The subsequent handling of these complications is a matter for the specialist, but it is because of them that all penetrating wounds of the eye must be regarded as serious. However minute the wound itself may be.

Complication.—Although superficial wounds heal readily accurate suturing is advisable, care being taken to avoid including tissues capable of the future.

Cause.—A perforating wound of the cornea unless it is small and central, almost invariably results in loss of aqueous which as it escapes causes a portion of the air into the wound and sometimes through the wound so that the iris becomes prolapsed and the pupil lost shaped. The air may, however, block the wound preventing further escape of aqueous. It is therefore important to assess the position and size of the wound, to determine whether the air is involved, either by incarceration in the wound, or by prolapse through it, and to determine whether the anterior chamber has been lost due to escape of aqueous. The depth of the anterior chamber when present can be a useful guide to air involvement often extending deep at the approach into the wound but shallow up to even the posterior corneal surface beneath the wound. It should be compared with that of the sound eye. Involvement of the air increases the seriousness of the injury on the basis of both introduction of infection and traumatic iridocyclitis with all their attendant dangers. Small central wounds with no air involvement may be treated with atropine, antibiotics, systemic penicillin, and a firm pad and bandage applied. If however a small wound is located at the periphery of the cornea and contains incarcerated air an attempt may be made to pull the air from the wound by withdrawing the pupil with Esmarch and applying a firm pad and bandage. Observation should be kept for the onset of infection or rise in tension and the patient should be sent to hospital as soon as possible.

The treatment of large wounds with prolapse of the air is a matter of skill

and judgment, ranging as it does from removal of the eye to closing the prolapsed one. Corneal wounds are sutured with very fine absorbable needles, or covered with a conjunctival flap. Such treatment is usually governed by the extent of the damage, and a consideration of the likelihood of retaining some useful vision in the eye. No eye can be damaged to the extent that repair is impossible. If useful vision is unlikely then the danger of sympathetic ophthalmitis in the good eye are usually regarded as justification for removal of the damaged eye.

If an attempt is to be made, albeit, to save such a damaged eye any prolapsed iris must be pulled well out of the wound with forceps and excised. This can be made as close to the cornea as possible, in order to remove infected and necrotic iris tissue. The conjunctiva should then be sutured from 5 o'clock to 8 o'clock, either above or below the cornea, depending on the use of the wound. It is then prudent to provide a flap which is brought down over the wound and sutured. Details of this procedure may be obtained from the Severn-Alison methods.

Sclera—Diagnosis of scleral wounds is frequently a difficult problem owing to bleeding and swelling of iris and subconjunctival hemorrhage. A decrease in the intra-ocular tension is a valuable sign, but may be obscured by the iris swelling. Any palpation of a ruptured globe should be waived out with the greatest degree of gentleness for fear of adding to the damage.

Lens—Wounds of the lens may be seen by direct observation or with the ophthalmoscope. Such wounds may be serious on account of the subsequent complications which include traumatic iridocyclitis, secondary glaucoma and sympathetic ophthalmitis. Immediate treatment is with atropine and firm pad and bandage. Development of raised intra-ocular tension is an early indication for surgery at a base hospital. The extracapsular lens, provided the eye cortex may be dealt with at a later date.

Penetrating Injuries with Retention of Foreign Bodies

An injury in which a foreign body has perforated and is retained within the globe, may possess all the characteristics and complications of a penetrating wound without retention of a foreign body. The dangers are however, increased by damage to ocular structures by the foreign body, and by specific action of the eye dependent upon the nature of the foreign body. Iron causes the condition known as siderosis, copper and brass, chalcosis, phosphenosis and lead are inert, wood and stone are likely to cause infection.

It is therefore of extreme importance to detect the presence of an intra-ocular foreign body and to remove it. A careful history may give valuable information as to the presence of an intra-ocular foreign body and its nature. Drilling, tapping, hammering and chipping are among the most common causes of this type of injury.

Examination should be directed to evidence of a wound of entry in the cornea, a hole in the iris, or an opaque track through the lens. Damage to the lens provides important data on the progress and assessment of the

severity of the injury. If the lens is undamaged the prognosis is usually good. If the vitreous bodies are clear ophthalmoscopic examination of the fundus may reveal a foreign body embedded in the choroid-retina.

Many valuable X-ray techniques have been developed to demonstrate the presence of a foreign body and to locate its exact position with great accuracy. In a shop at once it is worth while attempting lateral and A.P. views of the skull with the Service afloat machine. Such radiographs should be taken without screens and with the film elevated in the A.P. view in order to know the patient's temporal bones, which would otherwise obscure the orbit. In the lateral view of a double exposure is made with the eye looking up and then down, movement of a foreign body will indicate its relation to the globe. Failure to demonstrate the presence of a foreign body with the Service afloat X-ray machine would have to be regarded as conclusive. Frequency of a retained foreign body is justification for early transfer to hospital but treatment should be started with the institution of atropine, antiseptic, systemic penicillin and a pad and bandage. The onset of infection usually takes place about the third day, commonly from pneumococcus or *Staphylococcus*. Pus may be present at the anterior chamber where it is easily recognizable as a hyphema.

The extent of ophthalmic injuries cannot be classed without reference to the use of cocaine, which is rarely if ever justified (with the exception of burns) until after the onset of sympathetic ophthalmia, when it becomes the treatment of choice. The likelihood of development of sympathetic ophthalmia in the intact eye is greatly increased when the injured eye fails to heal, and remains red and angry. The prognosis, therefore, of the injured eye is of the greatest possible value to the ophthalmologist, who has to determine the subsequent status of the eye. The institution of cocaine will result in a severely white eye, thus removing one of the most important and helpful signs, upon which so much of the patient's sight may eventually depend.

Fractures of the Orbit

Fractures of the orbit usually result from direct violence to the face, frequently due to motor-cycle accidents. Superficial fractures involve only the bony margin of the orbit, while deep fractures may be fixed through the base of the nasal bones spreading across the orbital roof on each side, through the center of the nasal bones spreading into the medial orbital walls, through the superior maxilla, spreading into the lateral orbital walls.

Deep fractures may cause diplopia due to orbital hemorrhage in the early stages. The signs include enlargement of the eye, obvious deformity, asymmetry of the orbital margin, injury to the third eyelid nerve and enophthalmos. Orbital cellulitis may supervene as a result of infection from the orbital sinuses.

Such fractures are usually only a part of more serious general injuries, which will claim priority of treatment. Early treatment of any deformity should be undertaken when opportunity and the condition of the patient allow.

VISUAL MANIFESTATIONS ASSOCIATED WITH HEAD INJURY

Hemorrhage beneath the conjunctiva, caused by a fractured bone, should be distinguished from local hemorrhage. The former is darker in colour, does not move with the conjunctiva, and is found to be more profuse in the females, tending to run out as the cornea is approached. A local hemorrhage is lighter in colour, more profuse near the corneal margin, and limited posteriorly.

Emphysema of the orbit results from head injury, where cerebral damage has been sustained. It may cause proptosis, which early onset and lack of response to help in differentiating it from gas gangrene.

Damage to the ocular muscles and nerves, in head injury, may cause drooping of the upper lid, paralysis of all ocular movements, paralysis of conjugate movements, or nystagmus. Such lesions result from injury to the posterior longitudinal bundle, nerves, pons, lobes, or cerebellum.

The pupil in head injury may show a transient dilatation with sluggish reaction, and may be of different size, indicating an injury of some severity. The enlarged pupil of Hutchinson, which does not react to light is found in cases of raised intracranial tension such as intracranial haematomata. Small fixed pupils occur in posterior hemorrhage.

Pupillofixation is uncommon following head injury, but may result from central or unilateral haematomata, or if unilateral, from hemorrhage into the optic nerve sheath.

Optic atrophy may follow a focal and irregular injury to the orbital nerves without fracture. It is thought that this may be due to extravasated blood in the nerve sheath, or to rupture or spasm of the small intracranial vessels supplying the nerve. It is important in such cases to X-ray the optic foramen for any evidence of compression, which can be relieved.

Paralysis of the third, fourth and sixth cranial nerves may result from bone-fragment displacement. Recovery is the rule, but may take up to eighteen months. Convergence weakness is one of the commonest sequelae of head injury, and is usually regarded as a manifestation of post-traumatic psychoneurosis.

Closed Epithelial Cases

A CASE OF ARRESTED CALCIFICATION AND ANKYLOSIS

BY

Sergeant-Cumander (Dy. E. W. KING TURNER, R.N.

The patient, a female, aged 34, when undergoing review, stated that there was "down pressure" to right side of face of the maxilla involving a small hard elevation 3-4 mm. in diameter on the buccal aspect of the gum in a space between [5] and [7]. The space had not been noticed previously and there were no tenders or enlarged cervical glands.

Radiographs disclosed the presence of the partly calcified crown of a tooth in [5] region. There was no sign of the root (Fig. 1).



[Fig. 1]

1771121 1290078
1770170 178101

was present (Fig. 2). A tooth was present except for some slight erosion of which treatment was being given. A tooth was attached snugly in unopposed position.

At the time and a tooth was extracted from a patient at the age of 11 years because of its immaturity & its ankylosis.

From the radiographic appearance the drawing of [5] from the tooth and the history it seems reasonable to identify this tooth as the partly calcified [5].

A history was given of the following chronic diseases.

Whispering-speech at 2 years

Mute at 4 years

Mute at 7 years

Mute at 11 years

The patient is the eldest of six children and no dental observations are recorded in the case of her brother, sisters or parents.

A pronounced diagnosis of *ankylosis not found*.

The partly erupted tooth impales with some surrounding bone was removed by Surgeon-Captain (R.E.) R. C. C.M. in R. N. Hospital, Hailer. At operation the bottom of the alveolus has appeared normal.

Microscopic examination of the specimen was carried out by Professor Dr. A. Rastbach to whom it was submitted for the following report:

The section shows the crown of a tooth of which nearly all the dentine and some of the enamel has been resorbed and replaced by granular bone and fatty marrow. There is no evidence of inflammation and the process of replacement has almost ceased. There is no evidence of the root.

Fig. 2 is a photograph of the specimen.



FIG. 2

Discussion

Recorded cases of ankylosis of the permanent teeth are rare. Ankylosis of deciduous teeth, particularly the first and/or second molars is much more frequent (Nathan, Gerspery and MacDonald, 1953; Erdemian, 1954, 1956). In an investigation carried out in New York (Erdemian, 1956), out of a total of 221 ankylosed teeth 90.5 per cent. were deciduous and 9.5 per cent. were permanent.

Among the theories advanced no account for xanthoma on association with chronic syphilis (Bosner, 1954; Weidemann, 1956; Collier and Spearman, 1955) and 'some metabolic disturbance of a local character' (Beckmann, 1956) command most consideration.

In the case described above the known existence of at least one infected tooth in the region provides a possible (or even probable) explanation. It is of interest, however, that the point at which calcification was arrested appears to have been considerably earlier than age 11 when the abscessed tooth was extracted, unless a very great deal of systemic (as well as some enamel) has been resorbed.

ACKNOWLEDGEMENTS

I wish to record my thanks to the Medical Director-General of the Navy for permission to publish this communication, to Professor M. A. Madison for the histological work, to Professor F. J. Stoy for his advice and encouragement and to Surgeon Commander E. B. C. CHE. R.N.

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DEATH DUE TO CONGENITAL ABNORMALITY OF THE CORONARY ARTERIES AND TO EXPOSURE TO COLD

BY

Surgeon Commander D. B. JACK, R.N.

J. 44 (1) Received April 15.

The victim (aged 22 years) was an experienced sailing party on the afternoon of Saturday 12th January 1959. His wife was about 17 years old and arrived during a mild E.M.S.E. high.

It is clear from the fact that she showed that she had no other on that day, and that he did have more than her in the drink. The amount of time consumed by her could not be estimated.

He was dressed in an anorak jacket over No. 4s. The temperature was close to two degrees above freezing point at midnight. There was frosty snow everywhere, but not deep. It was clear bright sunny day with only a light breeze.

Time till my wife in the van of the party as far as the extremity of the hill. There was a short stop in the morning to take photographs. After that P. M. C. began to lag behind, accompanied by his wife and son. For a time he continued to walk, supported by two staves, the company he had on to proceed on an occasional interval. By this time he was completely out of his mind, very cold. Even so he was about and walked forward. Aerial support was not given. A few men in the gun room nearby. There was no recovery. He was pronounced dead when sent by a Medical Officer some days later.

On the arrival of the *Frangipane* (April, Dordrecht), a post-mortem examination was carried out in the Police Mortuary, Rotterdam, by Dr. W. F. Van Iersel, Chief Pathologist for Rotterdam. The report is as follows:

External Examination.—The body was that of a well built male. Rigor was unobtrusive and good muscular vigour of muscles (abdomen) was present on the dependent portions of the body. There were 60 marks of external violence but many small areas of superficial frost bite were present on the face only.

Internal Examination.—The thorax and upper air passages were free from obstruction. The tongue of the larynx was very congested but healthy.

The lungs lay free under the pleural cavities and showed no pathological changes. Each contained very little blood.

The heart was of normal size but the right ventricle contained little blood. There was slight dilatation and thickening of the posterior and right lateral wall of cavity and the openings of the coronary vessels were congested and broken down around. Despite this there was, however, no obstruction present in the heart vessels. The other chambers and valves of the heart showed no disease.

The stomach contained no food, but only a little clear watery fluid. The duodenum and upper part of the small intestine also contained no food. The remainder of the intestine had very little food.

The liver, spleen, pancreas, kidneys and lungs were examined individually and showed no disease or marked abnormality. The urinary bladder was distended and full of clear urine.

The Head.—There were no fractures of the skull or bones of the face present. The brain was congested but otherwise normal.

Opinion.—From the foregoing, I am of the opinion that death was due to a congenital abnormality of the coronary arteries and exposure to cold.

KELOID FOLLOWING ANTIHERNETIC POWDER SPRAY

BY

Surgeon Lieutenant-Commander B. H. BROUGHTON, R.N.

Between 3rd April, 1937, and 15th February, 1939, 17 patients have been treated with superficial X-ray therapy at the Royal Naval Hospital, Plymouth, for keloid scars developing on operations scars which had been modified with antihernetic powder prior to wound closure. The figures were made up as follows:

Thyroidectomy	1
Lamectomy (e.g. also cystitis by pain etc.)	4
Abdominal operations	5
—	—
	17

All keloids developed within a few weeks and some within a few days of surgery indicating excessive fibroblastic proliferation. Most patients came, pleased at the small operations in the scars of arthritis, melioidosis, burning and even pain especially in cold weather. All cases have responded satis-

radiation (B) Dosemeter at 500 r at 500 kV though I am confident their is strongly agreed.

The total number of patients who received the powder into their nostrils was 412. Thus the percentage that went behind was 2.6 and that was above the exposed figure because in the same period the total number who received surgery but no antibiotic powder was 254 and only one (0.4 per cent) of these has been treated for behind. The question of glove powder causing behind can be excluded since the readily absorbable "Biosorb" powder (Ethicon Limited) is used only in the thoracic and of course, was also used in both groups. The spray was first used in January 1957, which was three months before the first behinds were referred for treatment.

The following 2 cases are briefly reported.



Fig. 1

Discussion

The antibiotic spray used to treat all wound sprays is composed of a mixture of zinc bacitracin 10,500 units, neomycin sulphate 750 mg, Polymyxin "B" sulphate 150,000 units and propellant gas, triethylamine (Aptrex). The cost is \$2 for a small bottle of this quantity. The antibiotic was dispersed under pressure in a dry state as a propellant gas and an ultimate particle was obtained by evaporating in 60 minutes. On application a fine mist of antibiotic is deposited over the tissue surface ensuring contact with any adhering organisms. The makers claim after an extensive trial as a healing sterilized area that in a group of 150 random cases there was a reduction in danger sprays from 7.3 per cent to 0.4 per cent and minor sprays from 1.3 per cent to 0.6 per cent. No systemic toxic effects, delay in wound healing and no local toxic reactions were observed. However, and this is evidently important in the light of the present investigation, the makers advise only momentary depressions of the spray button from 8-10 in. distance from the wound and only a slight mist should be visible on the tissue surface. One-quarter of a second is enough to spray the wound area at a time. Moreover, the antibiotic powders are poorly absorbed.

In reply to my letter requesting information regarding indeed the makers say "prolong excessive amounts of neomycin and bacitracin applied to broken tissue can produce keloid like swellings, sometimes painful, during healing. These however subsequently regress spontaneously in a matter of weeks."

Two biopsies have been performed in the hope of finding remnants of the antibiotic powder, unfortunately this proved unsatisfactory, and none was found. The keloids appeared indistinguishable from ordinary keloid scars.

Conclusion

In my experience the keloids which developed in the present cases did not regress spontaneously. For the makers to advise that "keloid like" swellings can appear after the use of their product, and for their advice that only minimal amounts should be used together with the evidence presented, would suggest that the antibiotic powder is the cause of the keloids under discussion. It is apparent because scars do not to depress the spray button for longer than a quarter of a second, and that 1000 units have may be sufficient to tip the scales in favour of keloid formation. The short length of time suggested offers little margin for comparative safety, it would seem also that the future appearance of unexplained keloids is a distinct possibility with all that this implies if the powder is sprayed into the abdominal cavity.

I conclude that this little spray bottle though of attractive appearance, and though it apparently has a high acceptance coefficient in hospitals, is nevertheless a very small thing, and its continued routine use is unwarranted and undesirable. There is one final point, and that is the risk of breeding resistant strains of organisms in hospital patients with routine use of antibiotics.

LETTERS

A powder consisting of 2 flasks of microfinishes, consisting of small polypropylene sulphate (3) (also used on a 601 powder) and 1 consisting of an which preventing or combining bacterial infection was observed. It was found to be effective for these purposes. The number of applications varied from once to over five years' continuous use in one patient. Several patients had used it for six months or more. The author reports only one mild allergic reaction and mentions no occurrence of keloid in his series.

From a comparison of the constituents of this and the present powder under review the presence of the more unstable zinc hexamete probably accounts for keloid development in my series.

¹ *Microfinishes Hydrophilic Polymers: B. sulphate Tactel Powder*—J. V. V. Anderson of Dermatology, p. 75 April 1959. B. W. Houston 1959.

AN IMPROVED METHOD OF COUNTING FOR HAEMOCYTOLOGICAL WORK

BY

Samuel Isaacson, W. St. HOLLYHOCK, R.N.

The physical difficulty of counting large numbers of different cells, as when undertaking a differential white cell count is well known. The manually operated "cytometer type" counter is not generally available to individual medical officers.

The following method obviates the tediousness of penmanship recording, with inherent fallibility, by making use of the standard keyboard typewriter.

On the typewriter the numeral letter of bank two is "L." This has above, and adjacent to "L," "N," and "M" in bank three (see diagram 1). If "K" be used to represent the erythrocyte (1) *Erythrocyte* or *eryth* it is possible to count the number of all normal leucocytes with the fingers of one hand. Either hand may be employed with equal accuracy and in a fixed position on the keyboard.

In this way it is easy whilst watching the field of view to "count" the cells by depressing the appropriate key.

Counting is further simplified by using the integral or convenient position to know, for example, 50, 100 or 150 spaces between dots. If 50 spaces are left then this line would exactly contain a count of 400 cells. This makes for a very convenient to percentages.

Variable identification uses an internal address (1 below) to find the 2. The variable address (addressing a register number 1, 2, 3, etc.) is used in practice.

Once the counting is done, the figures from typed the numbers of individual cells can be counted directly. As an alternative, they may be quickly retyped in a second block immediately below the first and the figures read from the space-counting bar of the machine. Complete filing of the second block provides an automatic check that no symbols have been missed. Diagram 3 shows an abbreviated specimen count with all calculations.

Absolute values for the various cell types of far greater significance than percentage values can be readily obtained by using a simple microgram(1).

It will be seen that the calculations are very simple. Experience has shown that the method is very much quicker than microscope notations and a great deal less tiring. This is especially true when a number of counts have to be made. The reduction of fatigue helps to improve concentration and diminish the risk of error. This is further enhanced by the automatic correction which can be given in the field of view.

Although it may seem complicated at first sight, the method is quickly learnt and saves both time and patience for the single-handed operator.

SUMMARY

A method of blood cell counting using the typewriter as a form of digital computer is outlined with calculations and examples.

The method is felt to provide greater simplicity and less risk of error than microscope notation efforts.

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THE ICELANDIC FISHERY PROTECTION PATROL

BY

ROBERT LUTHELMER C. S. MILLAR, D.S.

Since September 1958, at which time, the dispute concerning the fishing bank fishing boat flared up, a number of Her Majesty's Ships have been assigned to the Fishery Protection Squadron for duties off Iceland. Each of these ships carried a modest officer and it is hoped that experience gained during these periods in these waters may be of some use to others who may find themselves in similar circumstances. For the conditions and the type of work are very different from those encountered during more routine sea time.

It must be appreciated that transference are rough and incomplete, many individuals and that calls for advice or assistance are always serious and genuine. The presence of a doctor on the vicinity is a great relief to the trouble skipper.

especially in under stress circumstances, such transference cannot be limited in Ireland.

All travelers carry a medicine chest which should have been checked before each voyage but experience has shown that such chests often contain Morphine, a few Codon tablets, an occasional bandage, a razor blade and perhaps a dentist. All Shoppers have taken a course in First Aid and elementary medicine, but this was often in the days and doesn't pass, and the handbook carried obsolescent and out of date.

Medical advice may be requested over the Haver Vane Network, or assistance rendered either on board the trawler or by bringing the patient to the Fishery Protection Cutter. In the meantime it is important to recognize several special factors. Time is valuable and the Fishery Protection Cruiser must continue her patrol as soon as possible. Facilities for dealing with a casualty on a trawler are far from ideal, but the patient may be too ill to be transferred to the Cruiser. Once on board a trawler, the medical officer may be faced with requests for treatment of the whole crew for minor ailments and finally the transfer to a life raft can be a very exhausting performance for the relief occupants.

The transfer to and from trawlers may be accomplished by use of the davit either the whaler and the inflatable life raft. The trawler has no facilities for life-raft transfer.

The davit system may be used only in a light swell and in these conditions it is ideal. It is the quickest means of transfer and it is easy to pump from the canopy into the trawler, and a stretcher may be accommodated. On the other hand a whaler may be more easily handled in heavier seas. A stretcher can be accommodated in a whaler but it is sometimes more difficult, if not dangerous, to board or disembark from the trawler. In heavy seas, no boat can be used.

The inflatable life raft is extremely useful for this work and has several advantages over ship's boats. It may be used in any but the heaviest seas, and is usually unsinkable if used on the cruiser shortly to be described. It is possible, no matter how heavy the sea, to board or disembark from a trawler although manœuvring at times is difficult. There is a disadvantage that in the open seas life raft transfers may cannot be handled safely. It is impossible on anything except a flat calm to place a stretcher aboard a raft without grave risk to the patient.

The rigging of the raft can be accomplished by placing it on a standing out chain affixing some provisions against chafing and adding to it supports from which it may be hoisted or lowered. A more satisfactory method of rigging the raft is to place it above the mast of a pair of crossed spars, which project outwards to prevent it from rubbing against the ship's side as well as providing a rigid frame by which it can be hoisted or lowered. An additional precaution is to rubber pads are placed on the raft between the boom projections.

The raft should contain a barrel and a heavy line. The barrel is not essential, for although the raft may fill with water, it will not sink. The rope cuts the raft when a wave crest breaks over the opening in the canopy and when

the traveler's scupper cups, when the raft rolls. It is also useful to carry a small lashing-off spar or boat hook, the ends of which have been blacked for it may be used to prevent the raft rubbing against the ship's side and thus to avoid its picking up a burning line drawn to the raft.

The question of clothing is of importance, and it has been found that the warmest suit is the ideal garment to wear during these transfers. Leather garments, such as our best stailings, long undergarments, a middle garment, vest and a polar neck sweater are desirable. Dry gloves should also be worn, but not during any evolutions. A life jacket should be worn over the warmest suit, the small lamp on the jacket being invaluable when working in darkness on the raft. It is essential that the light on the raft should also be kept functional.

The raft is manœuvred on the deck of the Fishery Protection Cruiser, and is then lifted by the tarpaulin dave and lowered over the side until it is within 10 to 15 feet of the water. When the first wave touches the underside of the raft or lifts it, it is stopped and allowed to drift away.

In order to pick up the raft, the transfer must be manœuvred so that the raft is abreast with the traveler drifting down. In these circumstances, the raft will soon be caught under the traveler's boom and will be, on the inside for disembarcation. Attempts by transfer skippers to come alongside are not appreciated by the raft crew, who have an excellent view of the transfer from platform and out on a particularly crushing manner. Once a bearing line is secured, the raft is moved off to a position opposite a scupper and made fast. Skippers act as excellent footballs but have a disadvantage in so much as that they discharge into the mouth of the raft. If possible a jumping holder is of value, but not all transfer-crews have them and some holders provided me of various designs for this purpose. It is possible to haul the raft aboard the transfer using one of the derricks, but these are usually in use for towing, and much valuable time and energy is expended for this. When the raft is used in a calm sea a line may be laid across to the transfer and the raft pulled to and fro.

It is important to bear in mind during these manœuvres that it is the comfort and safety of the patient that is of paramount importance.

A great variety of patients may be met during these transfers. Patients transferred patch, but the majority are suffering from the effects of a stroke. Other diseases that have been transferred have included acute myocardial infarction, and bronchitis, acute depression and anxiety states, chronic alcoholism, epilepsy, cardiac neuraemia, dental abscess and burns.

I trust that my experience may be of some value to my colleagues who in some future time may be appointed to ships on The Fisheries Protection Patrol.

I am aware that "unformed thoughts" or a reluctant response from some was intended on the part of a chief performer, be he or she a Member of the Crown, leading actor or actress, prima donna, first ballerina or what not, must almost inevitably engender widely divergent reactions in the mind of the audience on the one hand and of the undervisory authorities or "stand in" on the other for the one there is destiny, chance for the other the thrill of opportunity, perhaps long awaited, eagerly sought. I am aware too that the honorable role accorded to me tonight has not been long expected or thoroughly before.

Never in my wildest dreams or fancied hallucinations have my thoughts strayed to the prospect or possibility of speaking here on this historic spot. But I would be scarcely human, did I not confess to a sense of pride and pleasure in this compliment, albeit mingled with feelings of abject humility when I look around and see the distinguished company of guests among whom I find myself placed—men who have achieved position and fame in this "isle of time," men of distinguished courage, men who in or made sagacity decisions affecting their ship, their Service or the Cause itself, men with powers of memory and a gift of words such as I have always admired but yet ever failed to capture.

I have already referred to opportunity, and tonight, opportunity is mine. Finally, I would thank you on my own account and on behalf of my fellow guests how greatly we have enjoyed your London hospitality in this superb and historic environment, resulting in our momentous and victorious outcome of fortune and function through the special endeavours of its existence. For my own part had I accepted all the hospitality proffered almost lavishly upon me, I should have been in the company of the man addressed by St. Paul, the Traveller, doubtless a fellow "sheep-skin." Let him that thinketh he standeth take heed lest he fall.

The second reason why I welcome tonight's opportunity is that I may say something by way of tribute to your Service—the Royal Naval Medical Service—where uniform I was proud to wear from 1939 to 1946. Some here may have read—I know that Lieutenant General Sir Alexander Drummond even listened to its delivery—the Historical Address of the late Sir James Burns to the "Med Group" of St. Andrew's University, that most ancient of Scotland's seats of learning, sitting up there in the Kingdom of Fife, hard by Rough and the Firth of Forth, that sacred arm of the North Sea so charged with Naval history. At the close of his Address he posed the question how would some old graduate returning to his Alma Mater after many years, elect to spend the few minutes of time that Fate allotted to him, and with whom would he elect to be alone for a few minutes' conversation here among the many who had sought or had been sought within the University during the five hundred years of its existence. Tonight I propose to follow Burns' example, regarding the Naval Medical Service as an Alma Mater and myself as a returning alumnus. My choice of those with whom I would like a few minutes' talk again and again a purely personal one, Chamberlain or not. But the minutes are flying.

Finally I would love a word once again with Seaplane Lieutenant E. H. Tuck, R.N., since he was the first cadet of the Royal Navy whom I ever met. In

1896 he was surgeon in H.M.S. *Arcturion*, a gunboat, protecting our fisheries in the North Sea and Northern waters, a ship commanded by Commander Severn and based in Aberdeen, and during more than one summer I played cricket for Aberdeen University or a week Aberdonianist dinner against the officers and men of *Arcturion*. "Frank" Tugb had joined the Royal Navy in 1885 and died in 1904 soon after retirement from the Service. Ten years later in 1906 came my second introduction to a surgeon from naval Service. One Monday morning when I was Consulting Surgical Officer at Middlesex Hospital, there came into the surgery a patient with rapid pulse, high temperature, flushed face, and a severe symmetrical infection of his upper extremities—*Bells' Metamorphosis*, where very many here will have known. We had no observation ward in "Middlesex" half a century ago, and I took him into the Residents' College, gave him my own bed and bedroom, and treated and nursed him myself. Thus began a lifelong friendship. I have always been a *Charvated* whilst given credence to our own, and Montagu had played a great deal for Hampshire in the days of Captain Wemyss. Poole and other famous players and we talked at times for all days of the great days of Yorkshire, with Hirst, Rhodes, Beldfield, Hugh J. T. Brown and Tamsell, etc. Even after the last 1939-45 war a need to meet at "Lords," but by then he had a cardiovascular disorder from which he ultimately died.

Claude, Harcourt, and Woodall are only dim ghosts—spectres in the dark, beckoned and Allayed of Time when surgery was brotherly and medicine little more than gentle quackery. I should constantly avoid William Cookburn, who joined the fleet at Spithead in 1896. I suspect that he hailed from Calcutta. I shall speak of a different class of Scotmen in a few moments. He was a "vulgarist" of the first order—an *overman*. Professionally he passed his faith on dried and powdered crabs, eyes dissolved in vinegar and drunk while effervescing. He caused self-censor and Master self-advertisement to unusual lengths. His teeth were bad, and he would not be restrained sometimes to crush himself to misery on Earl's daughter, and like his patron, Sir Charlesley Russell, to get himself buried in Westminster Abbey.

Over to that far corner I seem to see a wonderful group of Low Land Scots and with them a single *Samuel*—the man who chased scurvy, syphilis and "yellow jack" from the ships of the Royal Navy. Greatest among them, though not as ancient as James Lind (1716-1794), belatedly honoured in 1953 on the occasion of the bicentenary of the publication of his book on scurvy. By a symposium in which Sir Shadkin Dudley and Sir Alexander Inghy-Mackenzie both took part. In Lind's three great classical works on scurvy, hypochondria and tropical medicine he showed himself a pioneer and an original investigator, and as Dudley said, he has done so by calling the founder of vitamin therapy "scurvy medicine and tropical climatology." There he stands as Thomas Dudley does him "the man of observation" and "the father of natural medicine" and reminds him that he (Dudley) and Gilbert Blane only "carried on" where Lind left off. They laugh that it was only long after Blane had left the Navy and become a civilian and as a physician to St. Thomas's Hospital that the Lords

Commanders of Admiralty could be persuaded to impose the use of lemon juice, which had been so long passed by naval surgeons, and at once scurvy disappeared from the Royal Navy.

Lord, in his turn, shakes Gilbert Blane on his old sobriquet, 'The Chaffian,' and on his immortality from the gold medal which many of your Surgeons have pressed for spontaneous disease but with pardonable pride Lord points up the star in which his own name is carved on the Western façade of the Institute of Hygiene and Tropical Medicine: his name flanked closely by those of the great Sydenham and James Pringle, and in the company of such names as Louis Brown, Bruce Brown, Paskin and others who have played a notable role in conquering disease and especially tropical maladies.

Sir William Barrett and Bryson keep talking of their groping efforts to find an answer to the problem of yellow-fever transmission, and they nod with approval at the recollections of the gallant genius, of McKendrick, but they rub their eyes with surprise when they hear of the medical discoveries of Lawson, the Freuchen of Cuzco and Manchurian, of Ronald Ross and a host of others. They are astounded at the yellow-fever discoveries of Finlay of Cuba, and of Wilson Reed and his colleagues of the United States of America, and they shake their heads sadly over the deaths of Myers of Liverpool and of Adrian Stokes. Barrett chuckles as he recalls what he taught the Russian Navy and reminds Bryson that what he had effected for Russian Naval medicine James Wyke had also done for the Russian Army and Cossack for its crooked population. The debt of Russia to Britain is not inconsiderable!

Sir John Richardson (1787-1825) stands a little apart. Barrett's long capture "in the middle" had prevented him from attaining the "woodcock" of the Royal Naval Medical Service but in agreement it is with men of your Screen like Bingham, Delgado and Stenoer that he went to sea and with them of his own three voyages to the Arctic, twice with Franklin and once in search of that unfortunate explorer. Nor even he resist the temptation to boast that he had started Hecker and Huxley on their distinguished careers in science.

Sir Henry Winkley I should love to meet, not only because he was the father of a delightful son, Lionel, but also because he is the only Honorary Fellowship of the Royal College of Surgeons of England ever awarded to a Naval surgeon (1800) and because of the delightful book on the Zulu and Kafir wars, which he wrote masterfully of the country and customs of these peoples, including an account of the ill-treatment of imprisoned adult Zulus, who even sailors have been a "tough" breed.

I seem to see in the gloried light, two old friends of somewhat greater height and build—David Wilkie and Jack Kennel. David Percival Dalrymple Wilkie (later Sir David Wilkie) "the man from Rarotonga" like Sir James Barry himself, whose friendship he enjoyed. I saw Wilkie first in the *Harriet Wilson* operating theatre in Chalmers Hospital, Edinburgh in 1814. I met him then in naval uniform at an anatomy examination for the "Primary Fellowship" in November 1817. He had been a surgeon in the Hospital Ship *Proserpine* at Glasgow of Scotland, and was later to take part in the defence of the Naval Brigade from

the Times Select, in the autumn of 1948. After the Armistice his own address was a consulting one, for he soon became Regent Professor of Surgery in Edinburgh University.

He was not only a fine surgeon, but he was also of the small of which the very highest type of general practitioner is made. The very checks, the attractive smile, the measured voice: the regal step seemed to inspire confidence in his patients as he walked from bed to bed exposed his hands: the pulse-rate became less rapid, the bath temperature descended, colour returned to pale, wet cheeks, and the surgeon's smile evoked an answering smile from the occupant of the bed. He was the confidence of all men and women students and others crowded just to touch the hem of his garment. Then suddenly the regal touch of life was arrested by a casual casualty which he discovered himself while operating on a patient with a vascular disease, as Mikulicz had done before him and as Katschir was to experience before the 1939-40 war had ended. He was one of the finest of that fine group of surgeons who have made Edinburgh so justly famous.

I J. Kaye, whose "*Medicine and the Navy*," is a monumental book, remembered that at the moment of his untimely death. A charming cultured gentleman, Cambridge and St. Thomas's—what lower background? The short, slight figure, the slow drawing, high pitched voice, the alert, brisk step, his sternness and courtesy, so much more of the scholar than of the naval surgeon—an expression which he deigned to drop and deigning courtesy in civil society so charmingly belied. His well-stocked brain I was often to admire.

Sefton Dudley may have been a controversial figure in ward rooms and social scenes, but in the esteem of his scientific peers who are those best qualified to gauge his worth and stature, he was an epidemiologist of the very highest rank. The personal of the chemistry section of Fellows of the Royal Society leaves one in no doubt of the note that he had carved for himself in that portion of the temple of Fame which underpins the special sphere of medicine in which he was so pre-eminent. This is not the occasion to recapitulate all his contributions to the problems of infection and immunity, yet it is not without interest that it was only a few years from here that his important work on diphtheria was done, a contribution to preventive medicine which was later to play no small part in determining the 1940 nation-wide campaigns of active immunisation against diphtheria which brought about the virtual extermination of that disease.

Dudley was taught to use a microscope when only six years of age, and throughout his research was his hobby. In his St. Thomas's days men like Shattuck, Dudgeon and Chubbart Wallace were his heroes, for they were "research men", he was the keen friend of William Ballou, Topley and Major Greenwood, and a member of the Medical Research Club. He was approached in New Zealand with a view to being made Professor of Pathology in the University of Otago, but he declined this flattering proposition because of his local attachment to the Royal Navy.

Duffley's superb mathematical mind stood him in good stead in epidemiological work. In his scientific work he was an individualist, since he was too independent to work under direction and too deficient to direct a team of research workers. Although he spoke with clarity he was an inefficient speaker, nevertheless the apparent aloofness with which he was on occasions charged by his critics was no pose: nor did it betoken a lack of interest in the subject as in the questioner, but arose from his quiet shyness. I feel sure that he was more proud of his F.R.S. than of being M.D.C. for it was the first Fellowship of "The Royal" that had come to the Naval Medical Service since the awards to Huxley and Huxley ninety years before.

In the Service he believed in expediting the necessary hygienic measures to Commanding Officers of Formations and placing on their shoulders the responsibilities of his medical advice. Where it was necessary he had the courage to cut through all official "red tape" and go straight to authority, as he did at the time of the formation of S.E.A.C., when he urged the formation of an international medical group, which should have direct access to the Supreme Commander. He got a rebuff: "from authority," but he had the satisfaction of knowing that he had prevented a vast wastage of man-power in the Eastern sphere of operations.

When the record of the story of the Royal Navy shall be finally scrawled running through it will be found the united record of an Medical Service, busily going here and there with the great success of those who have made enduring contributions to scientific medicine, but those that will stand out most strongly will be the names of James Lind, William Duffley and Gilbert Blane.

Most of those legendary figures whom I have recalled from the shadows have been research workers rather than surgeons, but naval surgeons have been ready to join opportunities with both hands when it offered itself and the annals of the Naval Medical Service include many pioneer techniques: thus the first "Eviscerator" amputation was performed by Ralph Cusack, surgeon to the Naval Hospital at Annapolis in 1804. As long ago as 1874 James Young, who had started in early youth as a surgeon's mate gave an account of amputation by the use of ligps. Surgery is also indebted to the Royal Navy for two important contributions to surgical practice: (a) in 1796, Lemuel Blank, an assistant surgeon at Haidar Agha, advanced the cutting short of ligatures and (b) the first successful ligature of the common carotid artery was performed by David Fleming, a surgeon in H.M.S. *Porpoise*; the result was successful.

The so-called "Tobruk plaster" was used by Surgeon Captain Claude Kruze, C.B.E. *R.N.* long before Tobruk ever appeared on the military horizon, but the vast number of the casualties and of the surgeons who employed the technique when the war moved to Africa popularized the method and gave it the name. Sir William Jones's Henderson Lecture on the subject of *Amputation Bleed*.

Tradition is something more than a legend of bygone men and bygone happenings; it is a living, moving force influencing and determining conduct among members of a community. The after-living of your traditional ways,

gallantry and devoted service will bequeath with steady flame: if one, we have the outstanding merits of official biographical assessment of the individual: the traditions of your V.C. Medford of Ceylon fame, of Nelson's Band and many from the past a post story today. There, if you will, to the pages of *Sanguis* Captain Jack Coulter's two volume work on the Royal Naval Medical Service in the Official History of the Second World War and read, for example, the journal of the medical officer of the *Glomacree* or of the medical officer of the *Essex*: of the epic voyage of the *Sealion* in the Arctic, of Medford in Ceylon in company J.W.H. with his hands full of wounded and the injured Sherbrooke, of J.K.M. Donald suffering himself from 'immersion blast,' but regardless of self: 'overhead all his attention shall be his shipwrecked companions who had been beached aboard the missing destroyer.' Read if you will the journals of the medical officers in *Chinesean*, *Pangalo*, *Abukhambani* or the remote-ships *Perth* or *Free*. Read of Hugh Chene's devotion to duty and the injured in Hong Kong hospital: the Argyle Street camp in Kowloon and in Shanghai; or John Ferguson diving off his ship to rescue his captain who had been blown into the sea by a mine explosion and then removing his spleen for severe intra-abdominal haemorrhage.

In the autumn of 1941 the Medical Director-General told me that of the medical officers about 10 per cent. had lost their lives and 10 per cent. had suffered deformities: and yet of all these just obtaining their medical qualification, not 70 per cent. joined the Royal Navy and the naval quota was only 2 per cent! No wonder that you got the finest young men into your Service!

I am informed that the Royal Naval Hospital at Chatham will shortly pass under the control of some other authority: and that Portsmouth and Port Edgar are no longer naval hospitals. It is further West at Haver and at Plymouth and on your ships on the high seas that you are to add to your great traditions. Applied in the wider sphere of international politics, we must hold fast with the West, and there is much truth in those lines of Arthur Hugh Clough written a century ago—

And not by Eastern windows only
When daylight comes, comes in the light;
In front the sun climbs slow, how slowly,
But westward look the land is bright."

On a balcony on one of the balconies in France there may be read these words: *A nous les glorieux de la France*. It was the faded glories of France after the *libération de 1944* and—the *Occupation*—that the *League for Tiesopie* came to revive and renew their effacement. In my turn, I would offer you this tribute: *A nous les glorieux de la Marine Royale*. But the glory of your tradition has suffered no temporary eclipse in with France, for your great tradition is anything, compromised, unimpaired, unimpaired.

Reviews

MOONSHI, Tahirul. *Visions of India*. Edited by Sir David Wainwright. Harrow: A.P.L., C.F.I.L.D. M.C.S. 0750. P.B.C.S. P.B.S.E. P.B.S.A. P.A.C.B. P.B.A.C.S. Series. Additional Editors: By and with M.L. London: Ballantine Tinsall and Co. Limited. Price 30s.

The aim of this book is "to keep the professional staff and on the practical application of the latest research and to provide an annual reference source on the latest accepted methods of diagnosis and treatment." Whilst the latter two chapters written by some of the foremost physicians and surgeons in the country are almost without exception outstandingly excellent, it is striking that the latter edited volume will be of at least value to practitioners for local medical officers is minimal. Nevertheless, twenty-five references and would wide praise speak for themselves and most medical officers will be largely rewarded by reading at least a part of this book.

There are indeed excellent articles such as those on the Treatment of Acute Appendicitis and the Early Diagnosis and Progression of Cancer of the Rectum and Colon and many of particular interest to the general practitioner and medical officers. In the latter category we find Chronic Bronchitis, Pustul Fori Whitlow, Actinomycosis and Vaginal Proctitis to mention but a few.

The volume tells short end in the excellence and authority of the individual articles but at the subject matter chosen is representative what the medical staff, a cross section of the various medical institutions catering to the different branches of medicine, surgery and gynaecology. It is an unfortunate fact that there are fewer articles that need be below the scope of most general practitioners. For example the detailed treatment of Endometrial Cancer and a detailed review on Spinal Injury/Paralysis and its treatment is Hydrocephalus are surely more within the scope of individual specialists than is that of a general practitioner or a rural medical officer!

J. H. S.

ROBINSON'S CONCRETE BLOCK SYSTEM. Revised by Peter Rose, M.A. M.C.Civils. M.E.C.P.(Land). Minerals Division. By size 456 with 23 illustrations and 1 coloured plate. London: H. K. Lewis and Co. Ltd. Price 12s. 6d. net.

This one volume again provides us with a vast compilation and up-to-date presentation on the design and construction not only of the concrete block system, but also of some variations which can hardly justify the description the word concrete. The book will be read probably with interest by architects, engineers and will be an invaluable member of any shop's technical library.

J. H. S.

THE TREATMENT OF MALARIA AND OTHER FEVERS. By Hugh Barker, Fellow of the Royal College of Physicians, Physician-in-Charge, Department Royal Infirmary. Pp. vi + 146. London: H. K. Lewis and Co. Ltd. Price 12s. net.

These volumes has employed Hugh Barker's name as indicate reading mainly to the advantage. By that he does not attempt to emphasize that specific questions though they later cannot be denied as open questions. After all when a more practical than to be lotted to sleep by words and phrases composed with economy and dignity?

method, is appropriate. The book, in fact, reads like a novel. The chapters on measurement, diagnosis and thinking are clearly set out and should prove of great value to the future, whilst the chapters on the use of the book, its structure and value of peripheral interest are less so.

¹ It may sometimes be to be made of that could indicate it is that we do, detail might have been more on the subject, or something.

The discussion is a short and demonstrates the points of diagnostic importance will. This is especially so in the case of some lesions of the lower limb.

Professor Kaplan notes that he believed that the standard of diagnosis and treatment of nerve agency injuries was quite different from that adopted in wartime, and Miss Bowden says he concentrated on a more liberal, relaxed standard for the civilians than that of officers.

Age Group	No (%)	Yes (%)	Don't know (%)
18-24	~65	~25	~10
25-34	~55	~35	~10
35-44	~45	~45	~10
45-54	~35	~55	~10
55-64	~25	~65	~10
65+	~15	~75	~10

TEPLON-HAARON—Clausen and Parnham. *Macmillan*, 1964. 28 original reports with an Introduction by Henry Smith M.D. Available from: *Chemical Abstracts*, New York; *Index Medicus*, East of Maryland; *Biological Abstracts*, Albany; *New York*, Pp 215. *London*, Henry Kimpton, Limited, 1964. 36.00.

This is a well-produced, well-planned and well-bound book, containing 15 original articles of varying lengths dealing with the chemical and pharmacological aspects of Triterpenes (J. Nakamura).

The introduction has been written by Dr. Henry Ford, M.D., of the New York State Department of Mental Hygiene. He gives a short survey of the contents of the volume and refers briefly to its relation with the plan.

[illegible]

The first article in the monograph, written by the Safety and Toxicity of Teflonex, Inc., and Dr. Physiologist on Roberts Receiving Teflonex, Inc., also most valuable. They show that this drug does not have a toxic effect on the liver, kidney or blood-forming organs and that Teflonex does not produce photochemically mutagenic in other phases of business and life.

To conclude, I can do no better than to quote from the introduction: "This paper is a bit different from . . . I am full, now, with the firmest conviction."

Revised and Expanded Edition By T. W. Lewis, Ed.D. Low Hoggard College, Leesville
 Pa. 12 Published by the author

This short paper is an attempt to show that the well known correlation between reading and long tenure is not causal but is part of a general law that says a correlation should exist between working time and any characteristic which shows chronic persistence by before the age of 18 and on a relatively short time.

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

(2) The above survey's findings proved basically satisfactory, highlighting the potential to develop a relatively simple system which could be used by people who were gathering forest-related data. However, the study results for the future are likely to be beneficial in helping forest managers choose whenever the appropriate time of day.



tabulating them, by way of change of the responsibilities of medical officers until 1931. He was promoted to Surgeon Captain on 1st May, 1934.

It was during his time as the Admiralty that Charles Barkley became well known and well loved throughout the whole Medical Branch of the Navy, and he was held in high regard by both active service and R.N.R.N. officers alike. Following the recommendations of the Pearson-Parker Committee, Barkley was faced with the very delicate task of reorganizing the structure of appointments within the Medical Branch of the Navy. In particular he was responsible for the introduction of that policy which aimed at providing hospital experience and general opportunities for younger medical officers. In selecting the right type of young officers, Barkley displayed shrewd judgment and foresight, and a large number of senior appointments to hospital serving, over their original appointments to the commandment which they received from Barkley as their earlier days in the Service.

In May 1937 Barkley was posted R.N. Hospital, Malta, as Senior Medical Officer of the Medical Section, an appointment which was followed by further service on the staff of the Medical Directorate-General in 1940. He was promoted to Surgeon Rear Admiral in April 1941 and then becoming Medical Officer in Charge of R.N. Hospital, Chatham, he was promoted to Surgeon Rear Admiral on 2nd July 1941.

He was placed on the Retired List on reaching the age limit on 1st June 1943 and was then re-employed as Medical Officer and Charge of the R.N. Auxiliary Hospital, Gosport Town, in the rank of Surgeon Captain. This appointment he held until his final retirement in 1947.

Surgeon Rear Admiral Barkley was awarded the O.B.E. in 1938 and was elevated to C.B.E. in 1946.

Age Group	Percentage
18-24	15
25-34	85
35-44	75
45-54	65
55-64	55
65+	45

I had met Charles Mackay when he was doing apprenticeship at the Elgin Hotel in 1879 and we had both become successful shipbrokers which developed and lasted over the years. Two of the best of my old colleagues say they share the 15 years I spent here as the known as Charles Mackay's time better before he died. I still have 20 letters his all over almost with him when I left them to his last in 1904-1905. His early life had great and serious - which are well represented in his early hospital apprenticeship - then his last few apprenticeship ability which took him on the professional rung of the ladder and led to the Second World War. He would not have been named in the other. I had freedom, plenty of hospital service with him and it was a great source of a steady and efficient man who quickly has moved to my part in the last and of some sympathy to me eventually shared in retirement, patients. He did not suffer from physical and his character of in every and speech may not always be a very pleasant one but he had in January of previous with him that the anything but the. He died. He lived the Naval Medical Service and possibly he was in the Royal Sea garden. Indeed it was a great source of him on retirement that, receiving all health care and these that eventually stopped all his activities, were not.

¹¹All other sexual acts have to reveal the same hospitality shown by him and his beloved wife and will seek to give each one an opportunity to be their daughter by making justice their responsibility as I have done. One must be sensitive.

*We would like to thank the staff of the South of Sea zone (SOS) - Admoral-Vigilante (FACJ) (B1) (B2) (B3) (B4) (B5) (B6) (B7) (B8) (B9) (B10) (B11) (B12) (B13) (B14) (B15) (B16) (B17) (B18) (B19) (B20) (B21) (B22) (B23) (B24) (B25) (B26) (B27) (B28) (B29) (B30) (B31) (B32) (B33) (B34) (B35) (B36) (B37) (B38) (B39) (B40) (B41) (B42) (B43) (B44) (B45) (B46) (B47) (B48) (B49) (B50) (B51) (B52) (B53) (B54) (B55) (B56) (B57) (B58) (B59) (B60) (B61) (B62) (B63) (B64) (B65) (B66) (B67) (B68) (B69) (B70) (B71) (B72) (B73) (B74) (B75) (B76) (B77) (B78) (B79) (B80) (B81) (B82) (B83) (B84) (B85) (B86) (B87) (B88) (B89) (B90) (B91) (B92) (B93) (B94) (B95) (B96) (B97) (B98) (B99) (B100) (B101) (B102) (B103) (B104) (B105) (B106) (B107) (B108) (B109) (B110) (B111) (B112) (B113) (B114) (B115) (B116) (B117) (B118) (B119) (B120) (B121) (B122) (B123) (B124) (B125) (B126) (B127) (B128) (B129) (B130) (B131) (B132) (B133) (B134) (B135) (B136) (B137) (B138) (B139) (B140) (B141) (B142) (B143) (B144) (B145) (B146) (B147) (B148) (B149) (B150) (B151) (B152) (B153) (B154) (B155) (B156) (B157) (B158) (B159) (B160) (B161) (B162) (B163) (B164) (B165) (B166) (B167) (B168) (B169) (B170) (B171) (B172) (B173) (B174) (B175) (B176) (B177) (B178) (B179) (B180) (B181) (B182) (B183) (B184) (B185) (B186) (B187) (B188) (B189) (B190) (B191) (B192) (B193) (B194) (B195) (B196) (B197) (B198) (B199) (B200) (B201) (B202) (B203) (B204) (B205) (B206) (B207) (B208) (B209) (B210) (B211) (B212) (B213) (B214) (B215) (B216) (B217) (B218) (B219) (B220) (B221) (B222) (B223) (B224) (B225) (B226) (B227) (B228) (B229) (B230) (B231) (B232) (B233) (B234) (B235) (B236) (B237) (B238) (B239) (B240) (B241) (B242) (B243) (B244) (B245) (B246) (B247) (B248) (B249) (B250) (B251) (B252) (B253) (B254) (B255) (B256) (B257) (B258) (B259) (B260) (B261) (B262) (B263) (B264) (B265) (B266) (B267) (B268) (B269) (B270) (B271) (B272) (B273) (B274) (B275) (B276) (B277) (B278) (B279) (B280) (B281) (B282) (B283) (B284) (B285) (B286) (B287) (B288) (B289) (B290) (B291) (B292) (B293) (B294) (B295) (B296) (B297) (B298) (B299) (B300) (B301) (B302) (B303) (B304) (B305) (B306) (B307) (B308) (B309) (B310) (B311) (B312) (B313) (B314) (B315) (B316) (B317) (B318) (B319) (B320) (B321) (B322) (B323) (B324) (B325) (B326) (B327) (B328) (B329) (B330) (B331) (B332) (B333) (B334) (B335) (B336) (B337) (B338) (B339) (B340) (B341) (B342) (B343) (B344) (B345) (B346) (B347) (B348) (B349) (B350) (B351) (B352) (B353) (B354) (B355) (B356) (B357) (B358) (B359) (B360) (B361) (B362) (B363) (B364) (B365) (B366) (B367) (B368) (B369) (B370) (B371) (B372) (B373) (B374) (B375) (B376) (B377) (B378) (B379) (B380) (B381) (B382) (B383) (B384) (B385) (B386) (B387) (B388) (B389) (B390) (B391) (B392) (B393) (B394) (B395) (B396) (B397) (B398) (B399) (B400) (B401) (B402) (B403) (B404) (B405) (B406) (B407) (B408) (B409) (B410) (B411) (B412) (B413) (B414) (B415) (B416) (B417) (B418) (B419) (B420) (B421) (B422) (B423) (B424) (B425) (B426) (B427) (B428) (B429) (B430) (B431) (B432) (B433) (B434) (B435) (B436) (B437) (B438) (B439) (B440) (B441) (B442) (B443) (B444) (B445) (B446) (B447) (B448) (B449) (B450) (B451) (B452) (B453) (B454) (B455) (B456) (B457) (B458) (B459) (B460) (B461) (B462) (B463) (B464) (B465) (B466) (B467) (B468) (B469) (B470) (B471) (B472) (B473) (B474) (B475) (B476) (B477) (B478) (B479) (B480) (B481) (B482) (B483) (B484) (B485) (B486) (B487) (B488) (B489) (B490) (B491) (B492) (B493) (B494) (B495) (B496) (B497) (B498) (B499) (B500) (B501) (B502) (B503) (B504) (B505) (B506) (B507) (B508) (B509) (B510) (B511) (B512) (B513) (B514) (B515) (B516) (B517) (B518) (B519) (B520) (B521) (B522) (B523) (B524) (B525) (B526) (B527) (B528) (B529) (B530) (B531) (B532) (B533) (B534) (B535) (B536) (B537) (B538) (B539) (B540) (B541) (B542) (B543) (B544) (B545) (B546) (B547) (B548) (B549) (B550) (B551) (B552) (B553) (B554) (B555) (B556) (B557) (B558) (B559) (B560) (B561) (B562) (B563) (B564) (B565) (B566) (B567) (B568) (B569) (B570) (B571) (B572) (B573) (B574) (B575) (B576) (B577) (B578) (B579) (B580) (B581) (B582) (B583) (B584) (B585) (B586) (B587) (B588) (B589) (B590) (B591) (B592) (B593) (B594) (B595) (B596) (B597) (B598) (B599) (B600) (B601) (B602) (B603) (B604) (B605) (B606) (B607) (B608) (B609) (B610) (B611) (B612) (B613) (B614) (B615) (B616) (B617) (B618) (B619) (B620) (B621) (B622) (B623) (B624) (B625) (B626) (B627) (B628) (B629) (B630) (B631) (B632) (B633) (B634) (B635) (B636) (B637) (B638) (B639) (B640) (B641) (B642) (B643) (B644) (B645) (B646) (B647) (B648) (B649) (B650) (B651) (B652) (B653) (B654) (B655) (B656) (B657) (B658) (B659) (B660) (B661) (B662) (B663) (B664) (B665) (B666) (B667) (B668) (B669) (B670) (B671) (B672) (B673) (B674) (B675) (B676) (B677) (B678) (B679) (B680) (B681) (B682) (B683) (B684) (B685) (B686) (B687) (B688) (B689) (B690) (B691) (B692) (B693) (B694) (B695) (B

From 1900 to September, 1919, he was in command of the Gloucester Optical and Dispensing Hospital from where he qualified as D. B. C. S. L. R. C. P. in 1924, and entered the Royal Navy as a Surgeon on First Mate of the same year.

He was promoted to Surgeon Lieutenant Commander in 1932. He gave testimony in 1917 and Surgeon Captain in 1935. After leaving appointments as a 3d Hospital Aide and Hospital he was promoted to Surgeon Rear Admiral on the 4th July 1934 and subsequently joined the Medical Officer in Charge of the Royal Naval Hospital, Chatham from 8th July 1933 until his retirement on 1st June 1935, on 3rd April 1935.

Polhemus Post became an Officer of the Most Excellent Order of the British Empire on 1st June, 1938 and was elevated to be a Commander of the Order on 28th January, 1939. He was an Member of the Order of the British Empire in 1946 and a Knight in 1950.

After his retirement, Ranganath Ramakrishna Padayachee has been appointed Honorary Curator and Medical Superintendent of King Edward VII Commemorative Hospital for Children at Calcutta, India.

Throughout his life, Perkins Park maintained a close association with Shoreline School of which he was a member of the Glee Club, during his later years. Following his death, tribute to his memory was held at a memorial service held under School Board.

²⁷ *Seppes on England*, A. R. FOLTERGOM, B. N. (Kendal) died on the 10th April 1939. His son, the Hon. Henry FOLTERGOM was baptised, M.B. Ch.B. at the University of Edinburgh in 1906 and entered the Royal Navy as a Surgeon on May 1908. Presented as Surgeon Lieutenant-Commander in June 1916 and Surgeon-Commander in May 1922 he was placed on the Retired List in June 1933 with the rank of Lieutenant-Commander.

Charles: World War I. Hospital: Chestnut. Policy was issued at 11:30. Ship: *Essex* and *Colchester*.

He was employed as a Sergeant, Connecticut State Police, 1939, and served as H.M. Doody's Chaplain and Paramedic and as H.M. Barnard, Paramedic and Infantry (M.I.) while in the Sergeant. Chaplain he was awarded Principal Medical Officer, Silver Cross, Indiana, Postcard, and released on June 10, 1945.

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9. *Journal of the American Medical Association*, 2000; 283: 2686-2692.

Age Group	Total (%)	Male (%)	Female (%)	Unknown (%)
18-24	15	10	20	5
25-34	25	15	35	10
35-44	35	25	45	15
45-54	45	35	55	25
55-64	55	45	65	35
65+	65	55	75	45

† The 1990-1991 and 1991-1992 data were pooled for the 1990-1991 data because of the small number of observations.

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1. *Verlaute Captain* (1798) *W. Baskerville*, (1814) *T. E. Parbury* (1819) *P. G. Burgess*
(1844) *W. A. Miles*

Environ. Commun. 2001, 2, 1, 1-10. doi:10.1080/15230420108818329

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³ C. B. Hawes (1984) *Am. J. Bot.* 71: 299.

The following precluded relations have been recognized for promotion to date (May December 2011):

To: *Journal of Post Keynesian Economics*, 15, 1993, pp. 111-124.

The Economic Committee: J. H. Collins, Chairman; H. H. Johnson,

For example, the following table shows the results of a regression analysis of the relationship between the number of hours worked per week and the number of children in the household. The dependent variable is the number of hours worked per week, and the independent variable is the number of children in the household. The results show that for every additional child in the household, the number of hours worked per week decreases by approximately 1.5 hours.

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En-Nigeria Commander—H. D. Doyle M.B.C.S. L.C.P. O.A. F. J. Street M.B.C.S.
J.M.C. L.C.A.C.N. D.S.

● 2014 年 11 月 1 日起, 凡在境内销售货物或提供应税劳务、服务的企业, 均须按照《中华人民共和国增值税暂行条例》(国务院令 2008 年第 530 号) 及其实施细则的有关规定, 向税务机关申报缴纳增值税。

The Researcher's Checklist—H. B. Wilson and M. S. Seligson

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Full-Service and Comprehensive Solutions | **Global Roll-Offs**

TRANSFERS TO PERMANENT LIST

Keywords: Leadership style; Follower's self-efficacy; Self-leadership

M. S. Choudhury, F. M. Khorramnia, A. Kulkarni, C. J. Kulkarni, Khosroo Moazzami, H. I. Tansale

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PLANT AND ANIMAL COMMUNITIES

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[illegible]

Abstract

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Reagents: Chloroacetic acid—1.0 g; Chloroacetaldehyde—0.50 g; 2,4-Dinitrophenol—0.50 g; 2,6-Dinitrophenol—0.50 g

WARDMASTER OFFICERS HONOURS AND AWARDS

Members of the Order of the British Empire

Wardmaster Lieutenant-Commander A. E. Moxley.

PROMOTIONS

To Wardmaster Lieutenant—W. G. A. Jones (1459), E. G. McInnes (1444).

To Acting Wardmaster Sub Lieutenant—G. D. H. Pollock, S.E.C. P.O. (2141).

RETIREMENTS

Wardmaster Lieutenant-Commander R. F. Macdonald.

Wardmaster Lieutenant H. Brown.

QUEEN ALEXANDRA'S ROYAL NAVAL NURSING SERVICE

HONOURS AND AWARDS

Royal Red Cross

Principal Matron Miss J. M. Woodcock, I.R.R.C.

PROMOTIONS

To Senior Nursing Sister—Misses A. M. Fairhead, E. H. Gordon, M. Green, P. B. Marshall, M. F. Jack, G. E. Wainhill.

ENTRIES FOR SHORT SERVICE COMMISSION

Misses T. I. Cobby, M. J. E. Gower, L. E. Mowat, A. Y. Wall.

TRANSFERS TO SHORT SERVICE COMMISSION

Misses E. A. F. Braham, T. G. Doyle, J. Y. Jones.

TRANSFERS TO PERMANENT LIST

Misses J. Harvey, E. T. Hunt, A. M. McMichael, I. B. Owen, E. Rayment, A. L. Taylor.

RETIREMENTS

Matron in Chief Miss B. Cockburn, C.B.E., A.R.C., Q.R.N.C.

Superintending Sister Miss B. G. Lyneall, A.R.C.

ANNOUNCEMENT

On Sunday, 17th July, 1939, a plaque was dedicated to the memory of the late Surgeon-Captain G. H. Southwell-Sanders, R.N., in the St. Anne's Church, H.M. Dockyard, Portsmouth.

RETIREMENTS

The retirement from photographs of Mr. E. J. Brown and Mr. W. F. Cooke, both members of the staff of the Royal Naval Medical School.

Mr. Brown was appointed Secretary of the School in July 1936, and continued in this position until 14 Jan. 1939.

Mr. Cooke, who joined the medical staff of the Medical School in 1937, after serving in the 5th, 6th, 7th, 8th, 9th, 10th, 11th, 12th, 13th, 14th, 15th, 16th, 17th, 18th, 19th, 20th, 21st, 22nd, 23rd, 24th, 25th, 26th, 27th, 28th, 29th, 30th, 31st, 32nd, 33rd, 34th, 35th, 36th, 37th, 38th, 39th, 40th, 41st, 42nd, 43rd, 44th, 45th, 46th, 47th, 48th, 49th, 50th, 51st, 52nd, 53rd, 54th, 55th, 56th, 57th, 58th, 59th, 60th, 61st, 62nd, 63rd, 64th, 65th, 66th, 67th, 68th, 69th, 70th, 71st, 72nd, 73rd, 74th, 75th, 76th, 77th, 78th, 79th, 80th, 81st, 82nd, 83rd, 84th, 85th, 86th, 87th, 88th, 89th, 90th, 91st, 92nd, 93rd, 94th, 95th, 96th, 97th, 98th, 99th, 100th, 101st, 102nd, 103rd, 104th, 105th, 106th, 107th, 108th, 109th, 110th, 111th, 112th, 113th, 114th, 115th, 116th, 117th, 118th, 119th, 120th, 121st, 122nd, 123rd, 124th, 125th, 126th, 127th, 128th, 129th, 130th, 131st, 132nd, 133rd, 134th, 135th, 136th, 137th, 138th, 139th, 140th, 141st, 142nd, 143rd, 144th, 145th, 146th, 147th, 148th, 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**BRITISH RED CROSS SOCIETY
TRAINING IN FIRST AID**

The British Red Cross Society has extensive commitments to provide training in First Aid for its members: for the Nurses of Hospital Services, the Civil Defence Corps, Industry, Agricultural Workers, and the General Public.

First Aid classes are arranged by local Branches of the Society in all parts of the United Kingdom throughout the year, usually on the evenings, once a week.

The Society would welcome the help of any serving or retired officers of the Royal Navy who are willing to act as lecturers and instructors.

Improvised professional First Aid Courses lasting one week are also arranged twice a year usually in September and January, at the R.N.C.S. N. and N. Training Centre, at Rossett Hall, Wrexham, near Guildford, Shropshire. Officers of help from any retired Naval Medical Officer or other naval doctor, who would be willing to spend a week at the training centre as residents lecturers for these courses, would be most gratefully received.

Officers who could give some time with one or two of the new types of courses mentioned above are asked to get in touch with the Medical Advisor to the British Red Cross Society, Major-General P. C. Baker, Surgeon, C.P., C.P.E., M.B., D.F.H., 7 Grosvenor Gardens, London S.W.1.

ADMIRALTY FLEET ORDERS—1959

(This page is prepared for filing)

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- 832.—Medical—National Blood Transfusion Service.—Co-operation with and Facilities for.
- 878.—In and Treatment.—Institutions, Facilities, Records, Returns, etc. and Supply of Food.
- 892.—Medical.—General Diseases.—Kala Azar.—Prevalence and Post Test Results.
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- 1245.—General Treatment.—Establishment, Facilities, Records, Returns, etc. and Supply of Food.
- 1248.—Medical.—Dermatologists.—Instructions.
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THE EDITOR

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Notes

ON THE CAUSATION OF VARICOSE VEINS AND THEIR PREVENTION AND ARREST BY NATURAL MEANS*

BY

Surgeon Captain T. L. CLEAVE, R.N.

PART I

Mechanism of Production of Varicose Veins The Law of Adaptation

Huxley [6] has recently stated that Darwin's "a hundred years after the publication of his 'Origin of Species,' holds first place in the biological field throughout the world, both by demonstrating that evolution must have occurred and by discovering the method by which it could and did occur and he has added that it is not sufficiently noticed that the spectacular discoveries of genetics provide today a firm foundation for a theory which was originally based on pure deduction. It is therefore remarkable in the writer's opinion, that in this year of 1959, the centenary of Darwin's work, modern medicine should make so little practical use of the theory of evolution. The present work will attempt to show that the prevailing opinions on the causation of varicose, varicose veins, and to some extent venous thrombosis, provide a striking example of this neglect.

It is first necessary to state that the title of the Darwinian theory of genetic importance to the present paper is that which concerns the remarkable adaptation in all species to their natural environment. This adaptation universal in nature and profound in degree excited Darwin's imagination from a very early date and it was actually on his explanation for it—the struggle for existence with survival of the fittest—that his theory of evolution was primarily based. Other explanations had been offered in the past for this adaptation, which had excited the imagination of scientists long before Darwin, but none so logically linked the adaptation with the new factor as he did. The latter

*This paper is shortly being published as a monograph by Messrs. John Wright, with a foreword by Ronald David CHAMBERLAIN, co-author with Frank H. COLLIER M.D. F.R.C.S. of 'The Pathology and Surgery of the Veins of the Lower Limbs'.

factor is likewise of great importance in the present paper, where the necessity will be stressed for an adequate period of time for adaptation to take place in a species in any unusual (i.e. new) factor in the environment.

It is fortunate that though there may still be dispute as to exactly how adaptation in species takes place, there is none about the fact that it does take place, for it is only with the latter fact that we are concerned here.

This adaptation to their environment which is, without dispute, as well constantly taking place in all species, and which at times has attained stages bordering on the miraculous, will be referred to in these pages as the *Law of Adaptation*, an expression that will be found throughout to have many advantages.

VASCULATURE

Taking the first condition to be considered, *varicosities*, this is well known to exist much more frequently on the left side, and nearly every textbook of surgery gives two most alternative explanations for this condition, which take the last one account. The first is that the left spermatic vein opens into the left renal vein at right angles, without a valve, whereas the right spermatic vein opens into the renal vein, obliquely, with a valve. This difference, it is contended, leads to a greater pressure in the left spermatic vein and so to the development of a varicocele on the left side. In short, the spermatic vein is regarded as a siphoned vein, lost in the structure of the body, the weakness being accentuated in certain persons. The second explanation is that on the left side of the abdomen the descending colon crosses directly over the left spermatic vein, whereas on the right side of the abdomen the current does not cross over the right spermatic vein, and in addition is partly kept away from it by the larger mass of the caecum than vesicle. This difference, it is again contended, leads to a greater pressure in the lower part of the left spermatic vein, and so to the development of a varicocele on the left side.

In a case like this we are guided by the Darwinian theory and the law of adaptation will give more than a thought to the first explanation. Application of this law leads, in fact, to exactly the opposite conclusion—that the flow representing an error in mechanical conception, the difference in arrangement of the two spermatic veins is definitely necessary. The necessity presumably arises from the asymmetrical disposition of the vessels in the abdominal cavity.

The second explanation, however, can be perfectly reconciled with this law. For though the difference in the relationship of the veins to the spermatic vein on the two sides must in Nature—i.e. under natural conditions—be perfectly compensated in the total anatomy of the abdomen, the difference under the suddenly new conditions of civilized life can become important.

Thus, the frequent removal today of much of the food from cereals, and the whole of it from sugar cane and sugar beet, as well as carefully elaborated diets, frequently leads to an artificial delay in the passage of the colonic contents, and hence to an unnatural increase in their weight. Hence a relatively small pressure can arrest the blood flow in even the largest veins, the intimate relationship of the renal veins to the left spermatic vein can, in these special

occurrences easily produce an obstructive effect in the vein, and hence ultimately a varicocoe on the side.

It will be noted, however, that in the absence of these special circumstances any accumulation of the colon is quite incompatible with the law of adaptation. There is, in short, a world of difference between accumulating the colon, and accumulating the food of modern civilization causing its effect through the colon. This fundamental distinction is believed to be central to this paper and applies not only to varicocoe, but also to varicose veins of the leg and femoral thrombosis, as will be shown later.

The fact that many people suffering from varicocoe would not admit to any difficulty with the bowel counts for little. Many people consider that the bowel is acting normally if they pass a stool each day, whereas the true criteria of normality are the diameter and hardness (first shown by the presence of flaccidity) of the stool passed, which increase steadily with delay. A person who considers the bowel is acting normally just because he passes a stool each day may in fact always be suffering from a constipation—of more delay. Therefore instead of seeking the cause of varicocoe as a crude constipation, it is necessary to seek it as a *delayed rate of passage of the colonic contents as opposed to the normal rate*. If this is done, all can be made clear.

VARICOSE VEIN

It is possible, now, to transfer this argument to the much more serious condition of varicose veins in the leg, where the fundamental cause is commonly considered to be that the veins of the leg, chiefly as regards their valves, are not yet adapted to Man's present erect posture—in short, that they constitute another residual work left in the structure of the body, the weakness upon being overtaxed in certain persons. An alternative view, that this conclusion has a colonic cause, though it has been suggested by assistants [2], attracts no attention.

To those, however, apprehending the law of adaptation, the view that the evolutionary forces which during untold ages have led Man to adopt the erect posture and have produced the necessary adaptations in his feet, his hands, his legs, his arms and countless other structures besides, have failed to produce a vein in his leg veins is quite untenable. This would be true even if human veins were rare, how much more true is it therefore in view of their extraordinary prevalence in civilized societies today, where they cause considerable discomfort *except in old age*. Thus, de Tolsted and Quest [3] found 18 per cent. of 1,000 otherwise healthy young workers, suffered from varicos of some degree. In higher age groups the incidence is much greater; for example, in a long series of candidates examined for Post Office appointments between 1957 and 1958 quoted by Foye [4], 30.57 per cent. of women in the age group 45-49 were suffering, in spite of the fact that these must have been many other women with more severe varicos who could never have applied at all for this non-voluntary occupation. This writer *paraphrases* that there are 5 000 000 sufferers from varicos in Great Britain. Such a tremendous

incidence is quite incompatible with the view that the work of the body constitutes a structural work, but—a failure of this evolution. The struggle for existence has never been so kind as to permit a state of affairs like this. Furthermore, the different incidence in similar cases under ordered and unordered conditions, clearly to be set out, is quite incompatible with such a view.

A holder of the weakened view might, however, argue that this supposed structural weakness was so confined to certain individuals as, really to give us a congenital abnormality. But in that case he would again be confronted with the numerical incidence quite apart from the difference incidence under ordered and unordered conditions just mentioned. The following list of the incidence of various congenital abnormalities brings this point out.

PERCENTAGE OF MALFORMATIONS AT DIFFERENT TYPES
(Concerning only the major malformations when more than one is present)

Type of malformation	Rate per 1000 live births
Anencephalus	0.5
Microcephalus	0.1
Hydrocephalus	0.7
Spina bifida (congenital)	1.4
Congenital cataract	0.1
Other congenital malformation of nervous system	0.8
Congenital malformation of heart	2.8
Other circulatory malformations	0.6
Club palate, harelip	1.2
Congenital hypertrophic pyloric stenosis	3.8
Imperforate anus	0.2
Other C.M.s of digestive system	1.6
Retarded vision	0.05
Hydrophthalmos	0.2
Other C.M.s of ocular apparatus	0.6
Polycystic disease of kidney	0.05
Other malformations of genito-urinary system	0.2
C.M.s of bones and joints	4.4
Other C.M.s not classifiable elsewhere	0.1
Low grade mental deficiency (i.e. non-inheritable also or inheritable (including mongrel))	0.7
Mongrel	1.4
Malignly heritable to determine major malformations	0.2

* Extracted from Table 7, page 84, of *Mortality and Morbidity in the First Year of Life—A Field Enquiry in Various Areas of England and Wales*. Edited by F. Cradock and E. Lewis (H.M.S.O. The Hygiene Society—The Cardell Project).

This numerical difference in incidence (the difference between over 50 per thousand for various cases and under 5 per thousand for most congenital malformations) quite apart from the difference in most cases in age of onset and the fact that congenital malformations are typically errors in the favour of certain embryonic phases and not errors in mechanical conception.

shows how far removed is their averaged character as, versus from congested malformations (which may be regarded as the only 'natural' weak links that do occur in the structure of the human body).

In contrast with the conventional weak link view just discussed, which is quite incompatible with the law of adaptation, a rational explanation for varicose veins, on the pattern laid down for varicose arteries is readily in conflict with the law. Furthermore, such a view is able to explain a complex difference in the incidence on the two sides, which the conventional view disregards. The complexity of this incidence is due to the fact that some of the more serious symptoms, of course, such as swelling, cramps and ulcers of the legs, are frequently—*via* incompetence in the ankle perforating veins—manifestations of past, lower (distal) thromboses (five veins being used to cover all varieties of deep venous thromboses in the legs) and whereas the incidence of ordinary varicosities is about 10 per cent, greater in the left leg than in the right (e.g. in the mass of 203 185) [3], these more serious symptoms—often indicators of past thromboses—are about 50 per cent commoner in the left leg (e.g. in the mass of 83 94). But a rational cause as long as it involves a delayed rate of passage of the colonic contents and not merely a crude congestion, can explain this peculiar incidence.

To note first, the incidence on the two sides of ordinary varicose veins, the colon is closely related to the upward continuation of the leg veins, *i.e.* the internal iliac vein. On the right side the vein constantly overlaps the external iliac artery, which lies directly on the vein, while on the left side the end of the distal colon crosses directly over the vein itself.

If now there occurs an unusual delay in the passage of the colonic contents, and hence an unusual increase in the weight of these contents, it happens at first sight that any pressure effects on the internal iliac vein will be greater in the case of the left vein, owing to the specially unusual arrangement of the colon to the vein on this side. But a deeper vein shows that this will by no means always be the case. For logically any delay and increase in weight in the colonic contents will take place in some extent throughout the whole of the colon and not only in the terminal portions. In that case the descending colon immediately assumes great importance, because in the standing or sitting posture the entire weight of its contents, which are normally *fluid*, is transmitted down to the caecum. A column descended by this means, and in consequence well over-lapping the internal iliac vessels (in fact a 'water-pipe column' as some American writers have called it) can lead in its way into the pelvis) may thus exert a greater pressure than does the distal colon which although also naturally full, receives, through frictional considerations, no such transmitted weight from the contents of the descending colon which are by now more solid, in addition the distal colon may be riding clear of the vessels through a lax arrangement of the surrounding mesocolon. The explains why ordinary varicosities when they occur in only one leg, occur only about 10 per cent, more frequently in the left leg than in the right. It must also be emphasized that the variability in the position and attachments of the

ation together with the variability in the case of any accommodation within it explains how even an apparently full column may not affect either wall tensively if the accommodation is mainly in the center (lymphoma), the result is more likely to be the production of haemorrhoids.

To take, next, the much higher incidence in the left leg of the more serious symptoms of venous stasis, often pointing to pure femoral thrombosis, this involves some consideration of the variation of femoral thrombosis itself.

FEMORAL THROMBOSIS

This condition has nearly always arisen during an illness in bed, and though recumbency if of the usual type is to be referred to shortly, is clearly a most important factor in the venous stasis that is the essential cause of the condition, yet an obstacle to accepting it as the only factor is that femoral thrombosis, as emphatically pointed out by Aschhoff [8], occurs considerably more frequently on the left side than on the right. Figures for this difference range from 1:2.1 in Calkins' [1] series of over 200 cases where the thrombosis was determined by autopsy dissection of the veins, to 2:1 in Barker's [2] series of over 900 cases and 3:2.1 in Ashurst' [9] series, in both of which later series the thrombosis was determined on clinical grounds—and it appears logical that the functional indications of thrombosis must ultimately be more accurate than any other.

The striking preponderance of femoral vein thrombosis on the left side has led Aschhoff and others, who regard recumbency as the cause of the thrombosis, to advance explanations which immediately bring to mind those advanced for the preponderance of varicose on the left side: one being that the left common iliac vein is crossed by the right common iliac artery, which is supposed to press on the vein (recently Williams [10] has discussed the artery over varicose veins themselves), and another being that the left external iliac vein is crossed by the iliac column. But not only is the former explanation just, as incompatible with the law of adaptation as was that based on anatomical differences in the left spermatic vein in the case of varicose, but each of these two explanations is made much weaker by the existence of the other. For it would be a coincidence indeed if Nature had made a mistake over both the left spermatic vein, and the right common iliac artery. If that were so, the body might be expected to be full of mistakes, whereas the signs for congenital malformations put us on show just how few Nature's mistakes are—and moreover they are not signs in mechanical conception.

A rational explanation of the higher incidence of femoral thrombosis on the left side, however, can be made to avoid this grave weakness, though it will not then be in harmony with the view that recumbency is the sole cause of the thrombosis. For though as shown earlier, a column cause can be made compatible with the law of adaptation through the food of modern evolutionism, a cause can be made compatible through simple recumbency.

It is to be noted that a column cause can explain not only the higher incidence of femoral thrombosis on the left side, but also the fact that the

higher incidence is more pronounced than in the case of ordinary venous veins. For if in the erect position, which will be shown to be equivalent to the production of venous stasis, the distal colon starts on the average only a little greater pressure on the external dist. vein than does the caecum, it is clear that in the recumbent position, which is operative in the production of femoral thrombosis, the dist. colon will exert a much greater relative pressure, since the weight of the contents of the ascending colon is not now added to that of the contents of the caecum itself.

Apart from a transient or reflexive cause, the relative importance of recumbency and venous stasis in the etiology of femoral thrombosis would, according to the line of adaptation, largely depend on the extent to which the recumbency was itself unusual. The law indicates that unusual recumbency would be decided not by the duration of the recumbency but by the degree of instability attending it. For example, if unusual sleeping positions—such as Fowler's—were imposed, as if the patient were discouraged from normal sitting and change of position or if actually prevented from making these movements, as in the treatment of certain fractures, or if he were too weak to make them, as in hemiplegia or profound anæsthesia—in all these cases an unusual recumbency would be present, and might cause a venous stasis sufficient to result in a thrombosis. A study of Gillet's paper leaves no doubt that this type of recumbency is, indeed, a dominant cause in most cases of femoral thrombosis. But there is nothing in such a view to exclude a reflexive stasis of the type described, from being often a contributory factor, and sometimes a major one, which the preponderance of thrombosis on the left side so strongly suggests. The relative importance of the two causes may be left to *judex*.

To sum up, a reflexive cause is well able to explain not only why ordinary venous stasis is about 10 per cent. commoner in the left leg, but also why stasis venous stasis pointing to past femoral vein thrombosis are about 50 per cent. commoner in that leg.

Pressure AND Flow

The actual mechanisms involved in the production of femoral thrombosis and venous stasis, respectively are—according to the view being advanced—very simple indeed. To take femoral thrombosis during recumbency the speed of the circulating blood falls greatly in any case, and during recumbency of the unusual types described it falls still more. In such circumstances it can be seen that thrombosis might easily occur without any venous obstruction to the vein being present, but more easily still if it were. And to take venous stasis in the erect position, especially during walking and other movements, the speed of the circulating blood is much higher and so even with a venous obstruction of the same magnitude, no thrombosis would occur. On the other hand, such an obstruction, in competition with the increased speed of flow, would result in a higher pressure on the walls of the vein, and

this absorbed pressure, increased in due course by secondary incompetence on the valves, would cause swelling and lengthening in the walls of any vein not well supported by the surrounding tissues—that is, the superficial veins, and so eventually would produce the condition of varicose vein. It is thus seen that the production of femoral vein thrombosis largely requires the coexistent, and varicose veins the usual position.

It must be emphasized that the main pressure-enclosed form, the venitinal column, obstruction is of a very small order, and quite possibly intermittent at that. So small that at the time of varicose veins, except during the aggravation of pregnancy, it takes many years for it to become effective, and so small that in the case of femoral vein thrombosis another factor—venitinal incompetency—is needed for it to become effective at all. In varicose veins the obstruction is regarded as the sole cause of the condition, whereas in femoral thrombosis it is regarded as only a contributory cause, the extent of the contribution remaining unknown.

At this point it becomes easy to understand failure to demonstrate experimentally any reduced rate of flow in the veins of one leg compared with the other. To take first experiments such as those by Wright and Osborn [21] on healthy subjects, it is clear from the arguments so far presented that in Nature—in, under natural conditions—the anatomical differences on the two sides of the abdomen must be so perfectly compensating that no difference in the rates of venous flow from the two legs can occur. And although the subjects in these experiments were from a civilized country, where the food is of the type liable to cause edema states, it is clear that such states would only be marked in a minority of people, and it has been seen that in only a proportion of this minority would the edema interfere with the venous return from the legs, and that in only a fraction of this proportion again would the interference be greater on one side than usually on the left. Therefore to demonstrate a slower venous flow on the average in the left leg in healthy subjects, but living in a civilized country, would require an experiment of very large statistical proportions, and also such that due to pressure that produces varicose veins is so small that it takes many years to be effective: an experimental technique of such extraordinary difficulty is to appear quite impossible of attainment, especially in view of the wide variation in results shown in even the careful experiments just quoted.

To take some similar experiments on subjects as last, though these experiments can demonstrate easily enough [12, 13] the gross falls in rate of venous flow that occur in certain types of venitinal incompetency, the demonstration of any small additional fall occurring more frequently in the left leg, due to venitinal column obstruction, which may be so small as usually to affect a knife-edge decision on whether a thrombosis occurs or not, seems almost as impossible of attainment. It would, however, be interesting to carry out experiments in the presence of gross varicose states, which appears never to have been attempted to see if any difference in the two sides could be revealed.

PREVIOUS

At this stage it must be pointed out that the law of adaptation postulated postulates natural pigmentation from being a primary cause of color formation (darkness or varicose veins, however much it may approximate any primary structural cause of these conditions that does exist—such as the relative size advanced above).

PART II

HARMONY OF THE FORELORD MICROSCOPIC PRODUCTION OF VASCULAR TISSUE WITH THE VARIABLE INCIDENCE OF THE CIRCULATORY ANOMALY PIGMENTATION WITH ITS HEREDITARY TRANSMISSION, WITH ITS INCREASED ACQUISITION TO CIRCULATORY CIRCULAR TISSUE AND SIZE WITH ITS INHERENT ANOMALY DIFFERENT RACE, WITH ITS CIRCULATORY TRANSMISSION STRUCTURE, AND WITH THE PRODUCTION OF VASCULAR IN OTHER PARTS OF THE BODY

VARIABLE INCIDENCE AMONGST INDIVIDUALS

Amongst people in a civilized country, living in the same general environment, and eating much the same food, some develop varicose veins, while others do not. The reason for this variability—as the view now being advanced lies in structural differences in individual persons, such as in the relaxation, and valvular arrangements of their leg veins, and in the form and attachment of their valves. But these structural differences are not at all the same thing as structural defects, and of themselves produce no disease whatever. It is only in the presence of an unusual factor in the environment—held here to be relaxed lordship's causing relative stress—that such structural differences become important; they must never be considered the primary cause of the trouble. The cleavage between the present view and the conventional one (that the defects are due to the structural differences themselves) is, therefore, absolute.

In the 1904-1911 war tall men were shot down during assaults against machine-guns, or by snipers when in the trenches, considerably more often than short men were. Yet one can looking at the dead body of a tall man killed in the way whose father had been killed in exactly the same way in the Boer War, would consider the death primarily due to a structural difference, and less to a structural defect, since in natural circumstances the latter might easily have been an advantage, not a disadvantage. And as exactly similar arguments may be used against the view that varicose veins are primarily due to structural differences, so above structural defects in the veins.

Now in the cleavage between these two views only of academic importance, it has a vital bearing on the question of prevention and treatment. Thus, in prevention, it is not given to suggest to alter the arrangement of leg veins or

the valves in his leg veins, but it can be given to anyone to decide whether continued obstructive influences shall be exerted on these veins or not. And whereas, even in the treatment of established cases, the holder of the patent suit will direct his thoughts to the removal of the cause and will try to find still further surgical procedures, the holder of the conventional suit, believing the condition to be inevitable, will not.

HEREDITARY TENDENCIES

Following on the above, the accepted hereditary tendencies of venous tone fall into place in the present argument almost automatically. For if structural differences, such as in the arrangement of the valves or in the venous valves allow an essential primary cause to operate, there is clearly every likelihood that these structural differences will be transmitted and that women will, therefore, show hereditary tendencies. But this fact now becomes of no more importance than are the structural differences themselves, and clearly cannot alter the basic approach either to prevention or to treatment.

PATIENTS ACCORDING TO OCCUPATION, CLIMATIC TYPE AND SEX

It is clear that with 2,000,000 sufferers from varicose veins in Great Britain alone, there is little scope for any special incidence as far as occupation or climatic type is concerned. It is not surprising, therefore, that at least one English authority [14] does not consider veins to be more numerous in certain people who spend a lot of time in the chair. The incidence according to sex, however, is a very different matter and nearly all writers agree that about three-quarters of the sufferers are women. In view of the numerous tendencies for the sex to suffer from related states, it is hardly surprising to point out which of the two sexes under discussion the preponderance of venous or related symptoms.

RACIAL DIFFERENCES

It has long been realized that varicose veins are relatively rare amongst non-Westernized peoples (and incidentally they have never been seen in any animal [15]). For example, as long ago as 1859 Allen in his "Surgery" stated that negroes, Indians, Mexicans and Chinese suffer from varicose veins much less frequently than do the white races. Wehner, however, some information on the state of civilization in the races mentioned, such as observation means very little, and it is safe to say that no proper investigation into the incidence of varicose amongst the different races of mankind has ever been made. It is possible, nevertheless, to demonstrate something in this connection sufficiently striking—to prove differences between the incidence of varicose in negroes living under truly primitive conditions in equatorial Africa and negroes living under civilized conditions in the United States.

As regards the former, it may be stated that for practical purposes neither varicose veins nor for that matter varicocoe are ever to be seen. The frequency of this fact has been given in personal communications from

Professor H. J. Cherry, and Mr. J. Cook, of Mankin College, Uganda; Dr. J. D. B. Langley, Queen Elizabeth Hospital, Unwaraka, Eastern Nigeria; Dr. D. C. Milnes-Thompson, Edwards Memorial Hospital, Mombasa; and Miss E. T. Moss, Warren Hospital, Northern Nigeria. Thus Professor H. J. Cherry and Mr. J. Cook, in answering the writer's enquiries on the incidence of septated horns, varicose veins and varicocele in very positive cases stated that fortunately they were able to help because these three conditions were recognizable in field surveys carried out for parasitic and infectious diseases. For example as regards septated horns they quoted figures by Dr. Kenneth Brown (16) Government Leprologist, which gave an incidence of 0.69 per cent. for this condition in the pygmy tribes of the Suddia Valley, Western Uganda, and 0.03 per cent. in the very tall Kavirongy tribe of Eastern Uganda, but as regards the other conditions they stated that "varicose veins and varicocele had never been noted in any of these tribal areas by any of the seven observers who have studied these peoples and must be considered exceedingly uncommon". Even in the Lango, Hamar, Hospital of Port Moresby, which caters for a native population whose land though shows a slight deviation from the very unpopulated lands found in the provinces just mentioned there is an average of only one varicose vein operation amongst a total of nearly 200 major and 600 minor operations each month. (17)

Any view that this freedom is due to a racial immunity can be discounted by the incidence of varicose veins and varicocele in the negroes in the United States, where the fact of the latter is much the same as that of the white races (18). The writer is indebted to Dr. C. Menéndez of the Vascular Clinic, at New Orleans for the opinion that the incidence of these conditions there is the same for both races. Dr. Menéndez bases this opinion on clinical experience. The actual admission records available at the Charity Hospital, New Orleans, are as follows:

PATIENTS ADMITTED WITH DISORDERS OF VASCULAR WALL

	After	Control
1940	22	20
1946	22	26
1947	28	19
1949	60	26
1950	95	39
1951		
1952		
1953	31	15
1954	78	40
1955	184	127
1956	120	54

These figures appear to show a greater incidence in the whites, but Dr. Menéndez explains that though the coloured wards are always overflowing, the white wards frequently have empty beds and therefore more patients for clinical surgery of the varicose vein type are admitted to the latter. Furthermore, the

civilized patients would always be less inclined than the others to seek treatment for the condition. For these reasons he prefers the opinion based on clinical experience, given above. In any case the difference in incidence is so great between the two groups of regions concerned in Uganda and in the United States, that it accommodates not only any errors due to personal examination but also those due to any racial variations between the two groups of regions themselves.

There is no need to stress that the remarkable difference in incidence of various types between man living under civilized and uncivilized conditions, as exemplified above, presents no problem to a holder of the view advanced in these pages, but every difficulty to the holder of the conventional view to which it presents a perpetual challenge.

OCCLUSAL THROUROUGH HISTORY

Various views are known to have prevailed as humanity for several thousand years. For example, Hippocrates and his school referred to the condition and its treatment around 450 B.C. Medical writings continued to do so through subsequent centuries. In more recent times Hume (1817) and Bender (1818) stressed the continuance of the condition, which seems never to have been done before (19). In none of the evidence from the past, it may fairly be asked, "If various are the causes stated, resulting from the food of civilization, how can such a cause be reconciled with the evidence of their occurrence over several thousand years?" There is no need to run away from the question; the answer to it can be found to be simple and it is hoped, convincing, but it cannot be found quickly.

In the course of time all types of teeth have evidence now remains of the various diseases from which they suffered, still less of the various conditions of their decay throughout the centuries. The brain, the lungs, the arteries, the veins and all the other structures of their bodies have long since disintegrated—all, that is except some of the bones and some of the teeth. And it is by analogy with what has happened to the teeth throughout history that an answer to the question just asked about various views can be found.

In order to draw on the evidence of the past on these matters, it is essential to have a proper appreciation of the lengths of time involved. It does not seem to be sufficiently realized that though ancient man occupies only the Quaternary period of natural manhood yet he extends over a temporal span of nearly a million years, and that for about half this vast epoch he has been sufficiently evolved to be able to light a fire and heat food over it (Le Gros Clark (20)). Such an epoch is between one and two hundred times the total length of recorded history, which it reduces to but a thing of yesterday.

With care in this way to preserve perspective over the time factor, it becomes possible to give a summary but highly revealing glance at the incidence of dental caries throughout the past.

The condition which it will virtually absent from a few surviving primitive races and from wild animals, was for nearly a million years also virtually absent

From ancient times [21] to when, as an primitive sugar- and wild animal- of the present time, [22] much of my cases that did occur was of a different type to find occurrence in civilized man today when a usually followed natural stricken of the tooth or an injury to the denture or carious instead of arising as a direct attack on the enamel [23]. But in 33 skulls of ancient Britons in the Bronze Age about 1500 B.C. there were already 7 cases of caries [24] and there was a much higher incidence in the most advanced civilizations of Egypt [25] and Greece [26] of this period, and later of Rome (including the Romans in Britain [27]). To move rapidly forward in the skulls of 76 Londoners of the seventeenth and eighteenth centuries 36 showed caries [28]. There is no need to raise the level to which caries has risen today when any skull—assuming it had any teeth in it at all—would show extensive caries in nearly every case. And how fortunate it is that these cases at least are disease the implications of which cannot be evaded by the argument that it was just as common in the past, only it was never diagnosed.

There are few sources on the history of dental caries who do not concede that, although the disease has borne some relationship to the introduction of the practice of cooking food, no main march has been with the progressively increasing removal of fibre in the refining of carbohydrates [29] during the march of civilization itself. In the case of cereals it is a mistake to suppose that these refining processes are of very recent origin. The practice of sowing out the husk from flour dates from quite early times. For example apart from much earlier evidence from Egypt [30] where flour was being produced in Greece at least as early as 800 B.C., and Hippocrates himself recommended whole bread for a patient with diarrhoea, thereby showing not only that whole flour was being made then, but that it was already reduced to passing through the gut at a reduced speed [31]. A quotation from Anaphanias, written before 300 A.D. shows that bakers were by that time producing whole loaves in quantity and by A.D. 33 the production of whole flour was geographically widespread [32], though usually confined to the higher grades of society in all the countries that produced it. In Britain, from the time of the Roman occupation the flour was even more frequently sieved to remove the husk. By the end of the nineteenth century whole bread had not yet appeared in the cottages of the poor, but by the end of the seventeenth century some of the poor were eating it, and by the end of the eighteenth century practically all of them were doing so [33].

The increase in the consumption of refined sugar—derived from the sugar cane and sugar beet, is of much more recent date. Ransing England in the twelfth century refined sugar remained a food of the rich for a very long time. The remarkable increase in its consumption, however, since the end of the eighteenth century, from 12 lb. per head per year in 1815 [34] to over 100 lb. per head per year today [35], is well seen in the attached chart.

Incidentally, the increase in concentration produced by the refining of sugar is remarkable, the 15 per cent. of sugar in the sugar beet being raised to nearly 100 per cent. in the crystalline product. Since the average adult

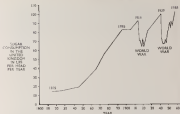


FIG. 10. Sugar consumption in the United Kingdom over the last century and a half.

in 1900 it was now consumed about 3 oz. of refined sugar daily, the equivalent, first, of consumption of the fiber as well over 2 lb. of sugar beet each day.

Compare in this point the short history of the refining of saccharides, which covers in the case of cereals a period of only a few thousand years, and in the case of sugar a period of only a few hundred years, with the immensely longer history of the cooking of food, which, as already stated, covers a period of half a million years—and the formidable dangers of maladaptation in the former process become obvious. That is why at the beginning of this paper the importance of the time factor in adaptation was so strongly stressed.

It is now possible to point out an obvious parallel that can be drawn between dental decay and various vices. The occurrence of the former is generally recognized as mainly due to the refining of cereals, and of sugar cane and sugar beet, the natural cleansing action of the fiber on the tooth being thereby lost. If the cause of various vices presented here is correct, the loss of the abrasive effect of raw fiber on the gut is equally important in the causation of this condition. And as regards the historical evidence, there is even less for the most part to have commenced with the beginning of these refining processes in the early civilizations, and to have increased with them at a rising tempo ever since. Lugsen suggests that the condition of varicose veins has done exactly the same. Certainly, the occurrence of the condition several thousand years ago, and the first recorded remembrance of it two hundred years ago, presents no problem to anyone holding the view advanced here. But, such a holder would be very confident that although the condition,

this dental disease already occurred commonly two thousand years ago it occurred much less commonly several thousand years ago and that it practically did not occur at all in ancient times during the million years or so preceding this period any more than it does in unenlightened man today.

PRODUCTION OF VARIOUS DISEASES

It is important to stress that the argument advanced in these pages is very clearly defined and admits of no shading in any part, such as would occur in vague references to hormones playing a part in their production or to "many other unusual factors in modern life." Varicose veins in the leg occur in those who stand a lot—and also commonly in those of much sedentary habits, that they scarcely occur in all. They occur in athletes—and also commonly in those that labor less, all who have not run a yard in twenty years and who stand certainly will never run another one. And the present argument is that the sole primary cause in every case is a delayed rise, or passage of the solidus contents, due to the removal of flow from the food as opposed to the natural rate. Any other disease in the production of these various, such as personal idiosyncrasy in the veins themselves, pregnancy, etc., merely aggravates this primary cause and without it has no effect whatever.

The intestine is a peristaltic tube, yes—but it contains nothing not already accepted in the case of hemorrhoids, which are merely another example of varicose veins occurring in the rectum. These latter varicosities are accepted as being almost exactly the same mechanism of production as those advanced here for varicos in the leg, the only difference being that in the former case the pressure is exerted on veins inside the wall of the gut, whereas in the latter case it is exerted on veins outside it. Varicose and varicose veins of the rabbit (in which an obdusated gut, usually only during pregnancy affects amongst others the spermatic veins and the paracoli branches of the internal iliac veins) belong, according to the present argument, to the same group, and it must seem to anyone in depth acquainted that no creature, unless due to a latent spritill cause such as those of the *amphipha* in members of the lower order anywhere in the body other than in their blood areas, all leading them what to the common explanation.

PART III

RELATIONS OF RELATIVE PREVENTION AND TREATMENT

As regards the prevention and treatment of varicose veins, it follows from the present argument that this should be essentially the same as that as present advocated for hemorrhoids, that is to say, the treatment should primarily be medical, aimed at correcting the cause in the gut, but should clearly include surgery in any case that are sufficiently advanced. A similar approach is indicated in the case of fibrosal vein thrombosis, but here supplementing postural and movement prophylaxis.

It is essential that the treatment of the digestive tract should produce no adequate change in the stools, both as regards diameter and hardness (as

shown by the disappearance of hunger; and it is important, too, that the treatment should be in the replacement of fiber to the food and not in the use of appetents. The well-to-do can achieve this recreation very pleasantly by switching from wheat bread and other foods containing wheat flour to true wholemeal bread and other foods containing true wholemeal flour, and as far as possible from ordinary refined sugar and the various sweeteners containing it to fruits and vegetables, whether fresh or dried (but not dried which often contain added sugar). The substitution of wholemeal flour for wheat flour in both material and size prevented the great pitfall is avoided of being served with "brown" bread or flour which are not really wholemeal at all. Drying had varying quantities of the bran removed. It will be assumed, however, also to substitute fruits and vegetables for the refined sugar normally consumed, but unlike the former substitution this one is far from easy and indeed it is almost impossible to substitute for all the foods containing refined sugar in a modern diet. Nevertheless if a positive desire for health be present it is perfectly feasible to achieve a substantial amount of this substitution, and certainly enough to produce a radical change in the action of the bowel.

Those who are not well-to-do cannot have so pleasant a solution to the problem. The extra cost of a true wholemeal bread is largely offset by the undernourishment needed to satisfy the appetite, but so much mitigation of expense is possible in the substitution of raw and dried fruits for refined sugar. Fortunately however these can achieve the same result by having recourse to the unsweetened loaves that have been removed by the mills, and this—extremely cheaper and even more effective, than any processed alternative—can be taken effortlessly in powder, soup or other convenient vehicle.

However to judge by the unwillingness of the public to substitute natural forms of carbohydrate in the prevention of the highly comparable dental diseases, where so much could be achieved if the desire were present, it appears that even the complete acceptance of the view presented here on the etiology of various teeth is unlikely to induce this substitution. Furthermore, the struggle for revenue may, in very rare cases compel mankind to adapt himself to the new cheap forms of carbohydrate food, however good over many thousands of years the cost is suffering. The extraordinary—and to some of us, terrifying—costs of the confectionery shops are here to stay. There will be no turning back.

However, there is no reason why those who belong to the thoughtful few, and who value their health more than the ordinary person appears to do should participate in this painful process of adaptation. For from the view presented here is of decisive importance: not only as regards the prevention and arrest of the condition involved, but also in regards ensuring the success of any surgical treatment undertaken. It is likewise of great importance to the surgeon who must put that treatment.

Lastly, even if the plausibility of the present argument be admitted, it may be contended that, compared to a lifetime's prophylaxis in prolonged painless, operative treatment on the teeth, are cheap in the price. But ensuring—and

it is a large assumption—that surgical measures are always successful even in the absence of this basic medical treatment. It is not as easy as that to be clever at Nature's expense. The production of other diseases must be considered. Not to mention only local diseases such as cancer of the colon, which increases in frequency in such sensitive parts of the colon and may well be connected with local irritant effects resulting from uncorrected delay; but likewise increases in such sensitive parts, general diseases are also important. The effect of relaxed metabolism on the teeth has already been mentioned, but there are only the first parts of the body to encounter these foods. To trace the effects produced in other parts of the body that encounter them such as papae close affinity, and in the water's exposed children, is obviously beyond the scope of this paper, but the diseases of civilization—of which it is contended varicose veins, is one—cannot really be considered separately. For they tend to be incurred or avoided together, and trying to avoid only one of them will rarely always prove to be a losing game. It is to the proper understanding of this large group of diseases that the Diersman theory can make so great a contribution, as the author has previously tried to show in the case of coronary disease [10] and now attempts to do in the case of varicose veins, and as he hopes to do in other conditions in later studies.

SUMMARY

The existing conception of the causation of varicose veins, varicose veins, and to some extent leucodermatosis, is contrasted in the light of the Diersman theory of evolution, and a different approach suggested, which makes attention to the effect of present acquired fully as important as those conditions to which it is universally admitted to be in the case of hereditary. The argument should be considered in its entirety—for the circumstances that all the facts point to the same conclusion is of the deepest significance.

A better summary of that work, however, lies in the answer to a key question: is the body built wrongly, or is it built rightly but being used wrongly? For example, in the case of varicose veins, are we going to consider the slow vessels wrongly assumed at the pelvic basin and separate them by surgical operation, as recently discussed [10], or are we going to consider them arranged exactly as they should be and, instead, attack some unnatural element in the environment that is interfering with their function? That is the question, and it can be applied to more than one serious disease in civilised countries today. The answer provided by the Diersman Theory is unequivocal: the body is built rightly but is being used wrongly. And in the case of varicose veins, if a place at the head and the vessel shape were not sufficient, the widespread rule of apertures would leave no doubt, at least in the mind of the present writer, that this answer is the correct one.

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PLACES AND PERSONALITIES IN THE HISTORY OF CHATHAM DOCKYARD

BY

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This paper formed the text of a lecture given on 8th August 1958 to the Ministry of Education's naval maritime history course at the Royal Naval College, Greenwich.

When Spain replaced France as the overseas enemy in our traditional enemy, strategy required that a better base than Portsmouth be found from which to repel attacks derived from the Spanish Netherlands. So the More Committee came into being and the King's ships came to lie in the Medway. The earliest record of the Dockyard seems to have been the rating for 1½ 4d per year of a cooperage to construct the materials used to scrape and protect the hulls of the wooden ships. This was in 1547 and though we do not know when the store was started it almost certainly was laid by St. Mary's Church.

Other storehouses were added between 1548 and 1550 and in the latter year an Order in Council declared that all the King's ships not harboured in Portsmouth should be transferred to Gillingham Water. In earlier days the Yard was always called after Gillingham, not Chatham, and indeed the hull of the present Vant is in Gillingham. However it became Chatham Yard in 1567 and so it has remained.

In 1561 the Bulwark of Upnor was scheduled for completion. The walls still stand in more or less its original form. It wears a kindly deserted air, but the pictures put up rather better than a token resistance to the Dutch when they appeared a hundred years later and today a tide goes down to a very lovely reach of the river.

By 1563 the expenses of Gillingham Yard had risen to £1,700 and between 1564 and 1570 its expenditure (like the name of Abbot Ben Adlam "led all for the rest") As the time although many skilled trades had arrived in connection with dockyard work, there was no fixed establishment of dockyard workmen. Between jobs the skilled workers dispersed to evel yards up the River Claret, and it was very difficult to get them back, again when another threat of war reminded the Nation to the fact that its workshops were in no state to fight a battle.

Queen Elizabeth visited the Medway in 1569 and stayed first in the Crown and then in the White Lion in Rochester. Why she stayed last lodging is not known, but it may be significant that the bills were not paid until 1573.

In 1578 two events occurred which indicated that Chatham Yard was to be permanent. A Mast Dock was dug out, the first attempt to produce a permanent dock of any kind. The other notable happening was that Hill House, a local mansion which had formerly been known as Queen's House, was furnished for the use of Dockyard Officers. The first tenant was the Master Shipwright, Matthew Baker, and he was joined by Peter Pett in 1582. Peter Pett of Deptford was the first of a family of which we shall later hear much. Hill House, which stood near to St. Mary's Church, remained until 1902 when it was pulled down to make room for the Royal Marine barracks.

A barge was set up in 1579 and additional storehouses were built. At that time the Yard lay between St. Mary's Church and the river, occupying the site of the present Gun Wharf. It had become an entry, it is true, but it was still enclosed only by a hedge and was guarded at night by watch-fires.

By 1574 many ships had come to be up in the Medway and the authorities, becoming apprehensive lest an enemy attempt a cutting-out operation, closed the river St. Mary's Channel with stakes.

The usual method of attending to the hulls of ships below the waterline was to put the ship on a soft mud and work on her at low tide. In fact it was the soft muddy banks of the Medway coupled with the considerable rise and fall of tide that had led to its selection in the first place. In 1581 a graving dock was built by digging out an artificial creek from the river and throwing a dam across its mouth at low tide. This dock was typically built to accommodate the galley "Hibernia" which had the Polish Prince Alenka living on board her. The dam which closed the dock was replaced by gates during the next year.

I have not been able to find out just where this dock was situated, but I think it may have been at the end of the present Gun Wharf where the New Basin was built a few years later.

Also in 1581 an additional wooden wharf 377 ft. long was built and more storehouses were put up. During the same year four Masters of Attendance were appointed whose duties were to move ships about in the stream and to act as pilots. The office still survives in the person of the Captain of the Dockyard who is thus the Queen's Harbourmaster. Except perhaps for the Surgeons, the Masters of Attendance were the first Naval people to be appointed to the Yard.

The Chatham Chest, which was initiated in 1580 by Hawkins and Drake was, I suppose, the earliest form of marine health insurance. It was supported by a levy of 6d. a month from sailors and shipwrights earning more than 30s. a month and 4d. and 2d. for women and boys. Five Principal Officers administered the Chest, each possessing one of the five keys necessary to open it. These Officers included the Chatham Master Attendant, a Master Shipwright, a Boatman, and a Purser, and it is interesting to note that the Captain of the Yard and the Manager of the Construction Department—the descendants of the Master Attendant and the Master Shipwright respectively—

still on the site, that of the late John Harkness Sargison which was founded in Rockham in the same year.

The persons or parties were granted to those possessing "certain rights" or evidence of a wound or disability suffered in the Service, and the amount depended on the assessment of the damage made by the Sargison at the survey on each individual.

THE STRAIT YARD

The year 1819 marks the end of the Old Dock, as the original Yard was called, for in that year a new set of buildings came into being.

These were built to the North side of the Old Dock in the shape of a rectangle, the river forming the fourth side.

On the South side or South Range were Officers' Houses with the Boat House behind them. The Sargison's house was next to the river, and then the First Assistant, the Clerk of Surveys, the Main Gate, the Clerk of the Chango and the Storekeeper. The Commissioners' residence occupied the corner and along the East Range lived the Master Assistant, next to the Commissioner the Master Builder, Master Regulator, Master Cooks, another Master Assistant, then the Butcher, and beyond the Clerk's building, and finally some stores for goods. The North Range consisted of iron and coal stores with the Dead Yard behind them. This quadrangle contained the first dry dock, and later on the contrary it came to enclose the double dock, a single dock, and two shipways.

To establish the Strait Yard in relationship to present day buildings—the South Range of Officers' Houses extended from the river to a point behind the present Admiral's House; the East Range ran parallel to, and about 40 yards in front of the present Terrace, and the North Range followed the line of the present No. 3 Dock.

The Main Gatehouse was a splendid edifice having a high tower with bell tower surmounted by a gilded spire and vane. It had an Italian grille with arches, French cornices, "pendants" and other decorations including the King's Arms. All "mighty fine," as Pops would say. Pops of course must have been very familiar with the Yard in this form, for he visited it at least once. In 1863 he came to see the Prince, Frederick and the reports. By charge to St. Mary's Creek where Commissioners Port described all the growing prominence of Portsmouth by the finding of those Crokers there, the design of a new dock to be great change and yet so little new. His thesis towards £10,000.

Obviously the quadrangle of houses and stores there lay the Registry, Spicers House, and various workshops to the south, and to the north the Main Pond, with St. Mary's Creek beyond forming the boundary of the Yard as it was then.

In 1868 the Old Dock—the original dockyard that is—was given over entirely to Ordnance and became the Gun Wharf. It has remained so until the year when its conversion comes to an end.

In June of the following year the long-expected (but not prepared-for) attack by the Dutch took place, and some sixteen British ships were sunk.

The wreck of one of them—the "Charles V"—was found in Sir Henry's Creek when the present No. 2 Bower was being made in 1876. Two of her guns are now mounted on the green in front of the Admiral's house.

As a result of the Yard's superannuation, Peter (Pet) the Commissariat at that time, was dismissed and sent to the Tower. Two years later the first Naval Officer, Captain John Glen, was appointed in his place. He reports with delight that the higher officers and men were too dignified to do any work and walked about with their hands in their pockets. As we shall see later they had their hands in other people's pockets as well.

In 1805 and 1811 two new docks were added. One is now No. 4 Dock and the other is the present No. 3 Slip.

The old Main Pond in the north of the Yard was filled in and another was made by 1810. The backwash of the Main Pond as it stands today may be seen; and if this gives a correct idea the Pond is all that is now left of the Stuart Yard. The old Main sluices which were pulled down in 1828 are now relics of the Stuart Yard. For last month we discovered the date 1737 scratched on one of the beams lying in the debris. One point, however, is to be made—the Officers' Nobles occupied the same situation in the Stuart Yard as they do (as *paragols*) today.

Although there is no trace of the Stuart Yard the buildings which began to appear as *Queens Anne* came to the shore happily still stand, most of them very nearly as they were when they were first built. The Stuart Yard with its quadrangle of Officers' Messengers and Messengers, together with the Boat House, Rags Wall, Spinning House and all the Storehouses along the Anchor Wharf seem to have disappeared with the end of the century. One is tempted to suppose that they were all pulled down at once and replaced by the Georgian buildings we now see, but of course alterations must have been spread over a number of years.

Appropriately the previous Admiral Superintendent's house was one of the first to be built. It dates from 1790 and is a splendid example of a *Queens Anne* mansion. It closely resembles *Margemans House* in Salisbury and its design is thought to have been influenced by Sir John Vanbrugh although the architect is not known. In the Admiral's garden there is a mallory tree which is said to have been planted by Oliver Cromwell, presumably when he was Lord Protector. He must have planted it in the garden of the former Commissariat's House which stood further back than the Admiral's does now, and he must have planted the tree before 1658 because he died three hundred years ago last year.

When the house was built no view across the Medway to the woods around and beyond Upper Cantle was to be had by the Covered Slip. This enormous wharf, of a building which looks like Peggotty's house in "*David Copperfield*" was constructed about 1812. It is almost possible, I suppose, that it may have inspired Dickens to invent the Peggotty home from an upstream boat, Sir John Duckett who was the model for the wicked William Micawber, worked in the Navy Pay Office near the Covered Slip from 1817 to 1823, and

Charles is a little boy often called his father on the Yard and told by him to come from Queen's Street to go to Shoemans.

After the Admiral Superintendant's House came the Clock Tower Building (1764) the Registry (1779) the Main Gate (1780) the Red Loft (1772) and the Terrace (1778).

The upper floor of the Clock Tower Building was used as the first Mould Loft at Chatham, and the lower of the ships laid off on sail to sea. It was so employed until 1860 when the second floor of No. 3 Pattern Shop came to be used instead. The Clock Tower store is a lovely old building of mellowed red brick from which the ancient clock has its Woodcut were "waited the hours My golden cone" for two and a half centuries. It does not appear to have changed from the day it was built, for it appears as a background to many old parts of the Yard and of ships being launched.

The Main Gate wears two magnificent coats of arms, the one on the main side being contemporary with the building. They are beautifully kept and have just received one of those periodic reliefs.

Just inside the Gate is the bell which was used to mark the beginning and end of the day's work. It stands high upon a hollow steel column, down the centre of which hangs the bell rope. It never sounds nowadays, but the older men still refer to the end of working hours as "bell-ringing."

The Red Loft, the Registry and the Storehouses on Anchor Wharf are all early Georgian buildings. They are not particularly striking, but all have that dignity which we learn to value in greater buildings today.

At the Gun Wharf end of the Anchor Wharf there is a mysterious high wall which curves in from the seaward and back upon to define a space without a door. This encloses the old Landing which lay at the foot of New Lane, now a cul-de-sac. A wooden stairway leads down the wall from a broken-in doorway to a pit with beams from which hang the scorpions of rope bidders. A causeway of stone slabs half hidden by the mud leads out to the edge of deep water. The whole scene is undeniably lonely and deserted, but it is not difficult to see Nelson as a boy leaving from this old landing place to join his very first ship in the Navy which he was to revolutionise with his spirit.

The Admiral's Office stands facing the No. 1 Cavalry Ship. It was built in 1811 by Hall and is a graceful building with the low pitched roof of Registry days and a very few low windows at each end. George says "The Office was extremely neat and commodious and well become the Opulence of the Marine and the Importance of the Navy." But then the same historian was inclined to be unenthusiastic over everything he described and went into raptures over the interior of Russell's Samarra with its "very elegant Steam Engine equal to the power of Thirty Horses."

The Dockyard Club was built at the same time as the Admiral's House, and it appears in a plan of 1715 as the "Surgery and Chest Room." One of my predecessors as a plan for a new Surgery about a hundred years ago reported that—"the little room where medicines are kept is damp by reason

of its being against the Terrace.¹ The little room, now a store for cleaning gear, is still damp.

Although it is pure surmise on my part I feel that the name implies that this was the place where corpses of drowned sailors and women took place. After the Dockyard Surgeon and his Assistant had autopsied each case the victims would be awarded from the Chelsea Chest's store according to his diagnosis. Whether the Chest itself was kept here, and was solemnly opened by the five key-holders I know not, but I like to think that there was some such ceremony.

What is really interesting about the Chelsea Chest, however, is that from it was ultimately produced—of all vehicles offering—the United States Public Health Service. The contributory system sponsored originally by Hawkins and Drake gave rise to the hospitals at Greenwich and at Longspid. The contributory idea was well known in America, because from 1729 onwards the Colony had to collect the full monthly tax from British sailors entering on pain. A bill was laid before the First Congress of the United States in 1789 to provide for the establishment of hospitals for sick and disabled seamen, and although this particular bill does not appear to have become law, an Act of 1790 did lay down that a levy of 20 cents per head of crew was to be paid by ships of any nationality entering United States ports. This money was to go towards the establishment of marine hospitals. Treatment of seamen's diseases led to the prevention of disease by quarantine and other measures, and the marine hospital service undertook this work also. Eventually the Federal Public Health Service was evolved from this foundation, and as a direct-lined descendant of the ancient system began here and practised in the Old Surgery.

The last two buildings to which I would refer are the Terrace and the Dockyard Church. The Terrace replaced the former Officers' Lodgings in the quadrangle of the Stuart Dockyard. The exterior has not, I feel sure, altered materially during the two hundred years and more of its existence. Access to the houses is either directly by the back, or indirectly by means of flights of steps to the front door level. This is because the front doors were so arranged that no carriage could approach, and as Georgian times those who were too gaily to walk, had to hire a sedan chair to reach them. In the porches are seats for the chamber and sick boys, but only the children rest there now.

The interiors of the six large houses and six smaller ones were singularly similar, at least one supposes so. But individual ideas have altered elsewhere from time to time, and now no two are quite the same. The stables and balconies of No. 12 are very handsome and complete in those in the Admiral's House. The stables in No. 13 and my own house—not inappropriately No. 9—are original also. On the roof there is a vast expanse of valuable lead which has facilitated profits. One of these says "Poor Jo died 1877"—a record perhaps of some tragedy in that year.

The Dockyard Chapel was consecrated in 1818. Its interior was shared by the Victorians—these irreverent upholders of English churches—but the

recently, have disappeared in the Georgian style. In the garden, which are approached by a gravel path, were large quantities of plants with straight stalks, which I have detached much at each end. The deer, pens on the commons, remained every Sunday morning from the bulls in the meadow, and the stock without heads went of course for the workers who guarded them.

The shelling and shattering of shells and ships in the eighteenth and nineteenth centuries is very confusing, and I do not propose to try to give it in detail. The trend, however, was always to expand the Yard, and expansion could only be achieved towards St Mary's Creek and Mand. In 1834 a plan was embarked upon to throw a wall around the island drain it, and then construct houses along St Mary's Creek. A convict prison was built along the Mand towards new sheds so that Changubone could be guaranteed, and a brickfield to provide materials was begun in 1835 in the area which had been drained. The first house was completed in 1871, and Nos. 2 and 3 houses were ready in 1883. The buildings beside these three houses form the present Yard. They are functionally more valuable than those in the Old Yard even if they are less lovely of face indeed.

I have tried to show you how the structure of Chatham Yard has altered throughout the centuries. The buildings are designed, created, occupied and used by men, and to give these buildings life we must try to see the men who worked here day after day for all these many years.

The concentration of dockyard activity in Chatham and Gillingham in the nineteenth century caused a diversion of the local population from their traditional occupations of fishing, farming, and trading towards employment in the Royal Yard. A village grew up around the Yard made up of dockyard-men and sailors from the Fleet, and in later years these were joined by soldiers from the Garrison. For the first three hundred years their houses lay about the Yard in Chatham, Brompton and Gillingham. That is to say the houses lay along the seaward side of Chatham, on the hill above the Yard in Brompton, and along the river again in Gillingham. For a while the lower part of the nineteenth century that the great Victorian works of Gillingham, Chatham and Sheerness changed the hills in a dramatic way from the Marshes. Because it lay within the fortifications, and because it was made up of a superior class of dwellings, Brompton largely escaped the curse of Victorian building and remained almost (at least from a Georgian point of view) until a year or so ago.

In the early days of the Yard, that is in Tudor times, one wonders that the dockyard activities was happy enough—at least he was not badly enough off to quarrel customers, and we hear nothing about him. With the coming of the Stuarts, however, pay began to fall into arrears, and this became a chronic cause of hardship, labour troubles, and lawlessness. The reason for the arrears of pay must be that the Treasurer of the Navy never could, at one and the same time, secure enough money for materials and for the men's wages. As the living cost of the ships came, but the men had to wait for their pay. The Treasurer's lack of funds was due both to the extravagance of the Stuart

members and the personage of Parliament who framed—not, *ex hypothesi*, misanthropes—misapprehensions of grants made for the Royal Navy.

It is difficult in these days to understand why the men continued to work for a Dockyard which paid them so meagre. But I suggest two reasons which may have been compelling. Firstly, the vagrancy laws of Tudor times—the Acts of 1472-1572, and the Poor Law Act of 1662 and the Statute Act of Settlement in 1662, imposed stringent penalties. It was impossible for a man to leave his district without being hunted by the overseers of his own parish and refused admission to a refuge by the overseers of other parishes. Secondly, and of the Act of Settlement that it has made the parish of the settlement a prison, and every other parish a fortress. Secondly, there were penalties to be laid on the Yard which might go some way towards providing some support for a man's family. The privilege of taking "chaps" out of the Yard was one of these privileges which deserves special mention.

In the reign of Henry VIII an official was appointed to sell waste timber for the Crown. These pieces too small to be worth selling were called "chaps" and could be taken home by the workmen. The practice was inevitably abused and many attempts were made to stop it. These attempts were badly managed by the men and on at least one occasion—in 1538—they led to a strike. One such action by the workmen is recorded in a letter to the Royal Clerk (2nd December 1538, from Sir Edward Gregory, the Commissioner). He says: "The evening of Thursday last having proved wet and obscure. The Bell no sooner summoned the workmen to their call but they found themselves surrounded by the Officers, The Master Shipwright placed at the Gate with three or four trusty fellows about him to search every individual man and lay that prison. This transgression began a liberal consultation among the guilty and every manell let drop his purchases in the crowd, amongst which were found, spits, nails, lead, axes etc., Which have all been punctually returned into the Store. But with all the care and caution that could be used, it was impossible to seize any more than four of these Offenders. The Chief Blame of which number is one Richard Wood James a Shipwright who has a year's pay due at Christmas and in my description of an unrepentant Offender. For we not only found him overgrown with the King's Goods actually about him, but found a quantity of lead at his Chest the next morning when I visited all the Receipts for wood to be searched throughout the whole Yard, I have not yet undertaken to punish the Villain. Because I would leave him to the stern severity that Law or Justice can inflict upon him, and I request you to resolve upon making him a Publick Example. The discovery which the discovery of these varied purchases has given me is greater than I can express to you. In a word I am weary of passing my time among such a pack of Villains and shall constantly pray for Deliverance."

The name Sir Edward Gregory had said only a year before—"The state of the men is truly deplorable, and were I can but make a shift to free them from my very heart I wonder how they will through?"—so we can assume that his humane feelings had been shocked a little.

Very Admiral Sir Gordon Hobbick has pointed out some interesting facts about clags. Their cost, he says, was limited to three feet and thus in turn dictated the maximum size of doors, windows and stoves in the houses in Old Portsmouth. A man was allowed to carry off only two animals which he could hold under one arm, and Admiral Hobbick suggests that the phrase—'carrying a chap on one's shoulder'—may have originated from an open defiance of this rule.

The mass defiance in breaking the abuses of privilege and personal extravagance was the spirit of the whole attitude, more up to the mark as people are themselves. Of these the Port family seems to have been, as Rogers says, 'anomalous in an age that was notorious for its extravagance'. The Pells were associated with the Yard for about a century from 1582 when Peter Pell of Deptford was appointed as Master Shipwright, as Chatham and joined Matthew Baker to Hull House. In 1608 two gentlemen with names which would delight Walt Disney—Phonon Pell and David Duck—bought a house in their private yard in Greenwich. The peculiar feature of this shop was, it is every plant, nail and rope that belonged to the King before her construction. The master came to engrave but the findings were tucked up by the King himself with whom Phonon used to converse. A son also Phonon, who became Clerk of the Chopper, was involved a little later in problems by which he earned two hundred workmen had kept three wages himself. A cousin of the Pells, one Richard Holborn, had furnished his final men by having coffee made in the Yard for his wife and himself. Also for justice, a Commissioner of Enquiry in 1650 had no findings quoted by the King and the culprits continued in office.

The wretched plight of the men continued throughout the seventeenth and most of the eighteenth centuries. We find that even the tough Naval Officers who were appointed as Commissioners after the fall of the Port family were shocked and disturbed by what they saw. In 1673 Commissioner Sir Richard Beach reports that the men were 'ready to starve and brought to low that they are not able to do a day's work.' Five years later he complains that the men were threatening to starve in peace, if their wages were not paid. 'If there is a penny upon earth' he says, 'I am on it here'.

If the Legislature were primarily responsible for the state of affairs, it cannot be wondered that the men felt little loyalty for Commons or King, and they allowed no opportunity of embarrassing the authorities to slip by. Thus they marched to London in 1677 and petitioned the Privy Council in 1678. In 1681 the Yard, with Upper Castle and the two Midway Forts, declared for Parliament as did the Fleet itself. In 1728 as the war with Spain was about to break out the men struck over curtailment of the clags' privilege. In 1742 during the War of Austrian Succession the carpenters went on strike, and in 1753 all the dockyardmen came out again and the shipbuilders were punished by being sent to sea. The American War of 1775 provided another opportunity for a strike action, but this time the Admiralty reacted very quickly and brought the strike to an abrupt end.

Throughout the eighteenth century the Admiralty gradually got the upper hand, profiting, I suppose, in respect discipline first, and beside the men's grievances themselves. One of the regulations imposed was that of 1763 which had drawn that no surgeons or male crewmen were to be worn at the Yard. This was in connection with the fact that the men working at the dockyards were not allowed to wear any trousers at all. Rogers and Oppenheimer both state that when the dockyardmen were given adequate materials and their living conditions were satisfactory, they produced first-rate work. To them, and to the sailors of the Fleet, is largely due the long series of victories which gave Britain her naval supremacy in the nineteenth century.

We have gone from Dockyard buildings to Dockyardmen, and I think it is logical now to round off by considering one or two individuals who worked in this old Yard in days gone by. We have had it in mind to quick look at the prehistoric Priests, but fortunately all Principal Officers were not like them. Some time ago two most interesting books came into my possession. These were a letter book for the Registry in which correspondence was carried between 1845 and 1860, and a similar volume for the Surgery covering the period August, 1859 to September, 1860.

My predecessor in those days was a Doctor William Green whose period of office coincided almost exactly with that covered by the Surgery Letter Book. Thus, from his letters we can learn quite a lot about Doctor Green and his times. He was a Scot and had the traditional Scottish respect for and pride in his profession of Medicine. One of his early letters, which is dated 15th December, 1858, complains to the Captain Superintendent of the actions of James Whitman, Esquire, late Member of Parliament for West Kent. "It is to be regretted," he says, "that the Medical Officers of the Dockyard should be interfered with in the Conscientious discharge of their duties, and that the Workmen should be encouraged from political considerations, to apply when labouring under temporary or real pressure, to any other than the Captain Superintendent, who would investigate the matter and see justice done to them. This is the second time Mr. Whitman has interfered in this way."

It is interesting to see a pencil notation in Doctor Green's handwriting which says:

"Memo. Captain Goldsmith did not send the letter to Mr. Whitman as I requested."

The relationship between Doctor Green and Captain Superintendent Goldsmith may have been a little strained because I find another such notation — in red ink this time — on a letter asking that a new Surgery be built.

"Memo. Captain Goldsmith got this letter in his dock. It was never forwarded to the Admiralty and did he submit it to the Board during their visit to the Yard in 1858 and 1860. He merely desired the Clerk of the Works to prepare a plan of the proposed Surgery which he did — this was also placed in his dock with my letter."

In this letter we note that the number of men employed in the Yard was 1,600 and that 1,500 new men had been engaged during the previous twelve months. It is also reported that the transmission room was very hot because it had a flat lead roof and a fire was kept burning to supply hot water. In mid-Winter in days too the standard of personal hygiene was very low, a fact which can be reasonably inferred from Doctor Gurn's remark — that duty (of examination), always a disagreeable one, has become of late much more so.

Doctor Gurn had no account for one called Peacock, who seems to have enjoyed bad health. Gurn reports that he had "an affection of the spleen, haemorrhoids and latterly symptoms of pulmonary disease which have naturally claimed him very much. There is also loss of appetite, great derangement of the digestive organs, debility and extreme nervous excitability," which one would probably run up today as neurasthenia. Doctor Peacock's duties included attending the men in their homes and this seems to have added to his ill-health. These homes Doctor Gurn reports are "badly situated about in the extensive neighbourhood" which indicates that Chatham and Gillingham were extending their boundaries by new building. To finish with Doctor Peacock, we find later in the records that he was awarded and given a pension of £145 15s plus the 5d a day half pay. Doctor Gurn has worked this out on the margin as being £221 10s a year, and it was exceedingly generous. This was no token act of gratitude on the part of the Admiralty because on 25th August 1862 the Master Rope-maker John Taylor was awarded a pension of £144 15s 4d because of a "very serious illness arising to exposure while guanoing hemp in London. This illness may have been tuberculosis, but Doctor Gurn states there was no hope of his recovery. I have no doubt that Doctor Gurn himself was instrumental in helping Doctor Peacock. For he seems to have been a kind and understanding chief. He later paid a glowing tribute to Doctor Peacock's successor Doctor J. R. Holmes and added: "With kind and humane to those who deserved sympathy and requested Medical Aid Doctor Holmes was always watchful to prevent fraudulent deception of men on the Dock and Hart Lines."

The latter remark illustrates a trait as in the Fore Dockyardmen which is not confined to them alone. This was a tendency to resolving problems. Doctor Gurn himself was as watchful as any and there are one or two amazing cases of his having discovered land-swingers. On 25th October 1864 he discovered upon the beam of one William Titman a Swager, who had been on the Dock List since 31st August though purporting attending the Surgery once a week. He notes that Titman lives over a butcher's shop marked with his name and customer. In passing through the shop I found Titman in a room behind with a butcher's lines on smoking a pipe. He had all the appearance of having been very recently employed in killing or cutting up meat. You will not fail to have noted the almost logical cautious approach to evidence here. Doctor Gurn with gentle caution and fairness of mind says in effect, "Mr Titman you appear to have been carrying out one or more of a butcher's normal activities."

Doctor Gunn's troubles were not all confined to the industrial world; for we find records of a young man with an almost Coleridgean name. Mr Spark, a Junior Clerk—who seems to have been a constant source of annoyance, Doctor Gunn writes on 14th January 1864, reporting to the Captain Superintendent that Mr Spark had evinced an unbecoming attitude towards himself and also had shown an indifference to Admiralty instructions of 15th February 1864. The cause of the bother was that these instructions laid down that non-industrials (i.e. clerical staff) are called today had to report to the Staff Surgeon on return from sickness, and the occasion referred to in Doctor Gunn's complaint was the third on which Spark had omitted to do so. The Captain Superintendent appears to have asked for Spark's reasons in writing, and these were sent to Doctor Gunn for perusal. Gunn writes again on 15th January and says:—"the facts are as follows. When Mr Spark was absent from sickness in March last he neglected to send a Sick Note. When spoken to he said that he had been read for two or three days and did not know what he had been doing."

On another occasion Mr Spark replied to the Staff Surgeon's reproach for not reporting by saying "that it was very annoying to be obliged to do so." This remark, I think, gives the clue to our Mr Spark's behaviour for he probably felt that the Admiralty directions that all must report on return from sickness caused an implication that clerks were not doing their job, or were off in a doctor's hands. The Captain Superintendent's remarks on Mr Spark's conduct are faithfully recorded by Doctor Gunn and make a splendid example of the Reverence for Authority held by the Victorians. Captain W. Houston Stewart says:

"Mr Spark's explanation is not satisfactory—he knows perfectly well that the regulations of the Admiralty who are our employers must be complied with by all Officers from the Superintendent down, and those Regulations must not be spoken of in an unbecoming or impugnant manner."

He went on to say that if Mr Spark spoke thus to Doctor Gunn in his presence he would take no further action.

Whether an apology was made does not matter, for Doctor Gunn had the last word. In writing a certificate on 15th March 1864, he shows for the first time in the history what may or may not have been a lack of humour. "As Mr Spark is suffering from General Debility, Nervous Irritability and increased health," he says, "the results I believe of his long residence (some years) in the spark district, I strongly recommend his removal to another locality, and if possible to a warmer climate."

The cases which Doctor Gunn and his Assistant Surgeon saw from day to day were mainly accidents, and I shall say more about these later. There were, however, other conditions which came their way. One of the early ones recorded was "Painter's Colic." This occurred in two patients, John Galloway and Abner Miffling, whose symptoms led them to be put on the Sick List when in fact they should have been (says Doctor Gunn) on the

Hart List. Still, illness is very important because the Hart List often gives, half past twelve, their disability was attributable to their work on the Sick List cases were not. Most on the Sick List, however, was, not discharged until a considerable time had elapsed, so their illness made their return very unlikely, which shows that Admiralty then, as now, were very good to their employees when they were ill. In their earlier time stuck at the family of the Boatman of the Yard and two of the children died. Doctor Gunn writes on 24th May, 1862, reporting on the conduct of the Boatman's house as being so damp as to be a cause of the disorder, and with an insight that is quite startling blames the poor ventilation and lack of sunlight. I say quite startling because he was so unaware that sunlight destroys the micro-organisms as he was that such an organism existed and gave rise to scarlet fever.

In 1862 Doctor Gunn records a police constable as having died from malarial attack in confinement while in Shrewsbury, and it is worth remembering that the mansion around the Mochny railway and the Isle of Gower then harboured the malarial mosquitoes which carried the disease about the locality.

In February 1867 Gunn recommends that a Mr. Russell should visit Imphosa or Tasteridge Walls to drink the chalybeate waters. A fountain of the should complete the cure of 'weakness in the fingers of the right hand.' I have a feeling, right or wrong, that Doctor Gunn's tongue was in his cheek when he wrote this.

In May 1863, Gunn advises the Captain Superintendent to rule that those men who are supervising from sentry-box should attend the Surgery as a separate list from the others. He continues that there is an epidemic of the dental disease in the Towns. The first Vaccination Act, which made it obligatory for all children to be vaccinated within three months of birth was not passed until 1867. Our friend Mr. Barrett, mentioned above, had to defer his return to duty upon because he had contracted smallpox—perhaps while taking the waters.

As usual, always happen in an industrial establishment the main work of the Surgery came from accidents, and just as happens today men continually suffered in this way from tripping over hard objects, being hit by hard objects falling from above, allowing hard objects to drop on their feet, or themselves falling from above onto hard objects beneath. The period covered by this book fortunately from our point of view included the construction of the first iron ship. She was H.M.S. *Atcham* which was launched on 21st December 1862. As might be expected in a new type of construction, *Atcham* caused a larger number of accidents than did her predecessors. We have records of all those which were serious enough to warrant the patient being admitted to Malville Hospital over the road, but there must have been many more because, in his eulogy of Doctor Holmes, Doctor Gunn cites the statistics of deaths which had followed the introduction of iron in ship building. Thus between September, 1862 and October 1864 there were 15 accidents which necessitated the men going to the Malville Hospital. During the year 1867 we lost 97 men.

continued) but this included spare minor repairs and cannot be compared with that of a century ago when there were no tenders and maintenance dredging. Melville Hospital opened in 1815, was the Naval Hospital of the day until the present R. N. Hospital was opened in 1903.

One unusual anecdote amongst the many reported, happened to Thomas Rudd a Spacer. In a certificate given to enable Mrs. Rudd to apply for a widow's pension David Evans says: "Thomas Rudd received a severe injury of the left side of the chest by being crushed when the men were lashing through the masted masts in the act of the Halsey grounded on the Marriage of the Prince of Wales, and I am of the opinion that the injury then received caused heart disease of which he died after Very Severe and prolonged suffering on 4th Inst."

His widow was given a pension of £12 per annum. The Prince was married on March 10th 1842, so that poor Tom Rudd was ill for nearly a year.

As my predecessors have lived in No. 9 The Terrace, for the last sixty years—and thus I have there a lady who lived near door in 1890—I think it is certain that Evans lived in that charming old house too. It is a happy home—in Kipling's phrase an "Elegiac" is picturesque—and there are no phantoms. It is odd to think, however, that since I have learned to his thoughts and wished his courage and goings-through the nucleus of the old brother covered back so filled with his angular writing. I have come to know William Evans M.D., much better than many people I see every day in the Yard of 1936.

Evening

On Tuesday 30th December 1936, a cold grey afternoon with a high tide lapping at the sea-wall. Mr. A. J. Gurnawary, Superintendent, Arsenal Supply Office, hoisted down the Union Jack on the Gun Wharf for the last time. His action brought to a close the tacit ceremony which marked the end of an establishment which had served the Fleet for above four centuries. Before a small crowd of present and past Gun Wharf people, and a few of us who had also come to leave the old place, the Admiral Superintendent, Rear-Admiral J. Y. Thompson, told the story of the establishment's long life. He recalled that it began in the last year of the reign of Henry VIII and continued through the reigns of twenty-one monarchs. Traditionally the Navy maintains its machinery in peace as in war, but to do so tradition must sometimes be sacrificed and old customs, like old methods, must be given up. Thus the old Gun Wharf ceased to serve Her Majesty's Navy, ending in the sense of Drake's Prayer a day thoroughly finished.

Acknowledgements

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LOCAL EFFECTS OF HYPERTONIC SOLUTIONS

BY

Sergeant Commander G. D. WIDD, R.N.

If it is necessary to give a drug by intramuscular injection, it is expected that the injection will be accompanied by a certain amount of pain. If the drug is given in hypertonic solution, as is frequently the case, there is likely to be some lasting pain at the site of the injection but the patient accepts the pain as inseparable from the treatment and the clinician, confident that no permanent harm will be done, does not worry unduly.

When the experiments hereafter described were performed the intention was to test a drug which might have to be given by self-injection. The drug in question was 2 hydroxypropionethylethyl-N-methyl pyridinium methanesulphonate (P25 for short) which is effective in the treatment of poisoning by anticholinesterase agents such as sarin gas and tabunites. Since it is necessary to give it in rather large quantities it would be desirable to give it in as concentrated a solution as possible short of doing permanent damage to the muscle or producing an unacceptable degree of pain.

PART I

The experiments were arranged to determine

- (1) Whether P25 was less locally upset from its hypertonic effect
- (2) What local damage was done by different concentrations of saline in animals
- (3) How much pain and loss of function was produced in human volunteers by various concentrations of saline and P25 given intramuscularly

In order to compare the effects of saline and P25 after injection into animals it was necessary to calculate the osmotic pressures of the two in solution. The result accepted was that a solution of sodium chloride should have the same osmotic pressure as a solution containing 3.3 times as much P25 (weight for weight). It is admitted that this calculation is little better than a guess but, as none of the results obtained, it is probably not far wrong.

The solutions for injection into rabbits were: Saline 3 per cent, 4.5 per cent, 6 per cent, and 7.5 per cent, and P25: 10 per cent, 15 per cent, 20 per cent, and 25 per cent. Each contained a little finely divided carbon to act as a marker. The saline was unbuffered. The P25 was not unbuffered as it is unstable at high temperatures. The eight solutions were injected into

apart by cuts in the ligament capsule, saline into one side, and a smaller volume of the corresponding P25 into the opposite side. It was necessary, to limit the volume of the solutions, so that the constant of P25 penetration was moved half the L200 (about 200 mg/kg for rabbits). This was done by injecting 36 mg/kg into each ear so that the rabbits accepted about 3 L.L. the volume injected was about 0.30 ml for the strongest solutions and about 0.4 ml for the weakest.

Two rabbits were killed after each of the following intervals—five hours, one day, three days, five days, eight days, sixteen days and thirty days. The lumbar muscles were dissected out and the parts showing the most intense colour staining were reserved for histological examination.

Observatory

With both the saline and P25 solutions the histological changes were more marked after the more concentrated solutions although a smaller volume was injected and the condition produced by P25 could not be distinguished from that produced by saline of similar toxicity. The carbon particles remained near the site of the injection but did not give rise to a foreign body reaction after thirty days. No changes were found that could be attributed to infection by the waterborne P25.

The histological appearances at the site of the strongest and weakest solutions for the first eight days are described below. The effects of the other solutions were intermediate.

P25 15 Per Cent and Saline 7.5 Per Cent

In five hours there was extravasated blood and exudate containing polymorphs along the needle track. On each side of it the muscle was edematous, many fibres were swollen some were ruptured and some ruptured (figs. 1a and 1c). These last changes were not due to mechanical trauma for they were found well clear of the extravasated blood.

After one day the extravasated red cells were being haemolysed and disappearing. The inflammatory exudate and the muscle fibres once again the same as the day before but the exudate was no longer visible.

After three days the blood had nearly disappeared but there was still exudate containing mostly inflammatory cells. Damaged muscle fibres were greatly swollen and had lost their structure. Some were still unswollen and some were represented by spaces containing pale-staining debris (figs. 1b and 2a).

In five days the exudate had cleared up but there were now a few narrow strands of young scar tissue containing the remains of muscle fibres. Apart from this dead muscle in the scar tissue there were very few damaged fibres.

After eight days there was no abnormality except a narrow vein in which a few dead muscle fibres were included (figs. 1c and 2b).

P25 10 Per Cent and Saline 5 Per Cent

In five hours the extravasation of blood, inflammatory exudate and exudate



A



B



C



D



E



F

Fig. 3—Effect on retina made of 7% 30 sec/100. A, B, C, 22 sec/100. D, E, F, 10 sec/100. A and D, 1 hour; B and E, 2 days; C and F, 4 days after exposure (20).

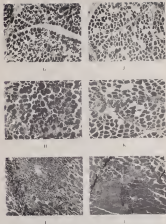


Fig. 2.—Effect on cotton strands of sodium silicate: (a) untreated; (b) 10% sodium silicate; (c) 10% sodium silicate, 10 and 20 hours; (d) and (e), 2 days; (f) and (g), 5 days.

were much the same as those resulting from the stronger solutions. The muscle damage was of the same type but was much less extensive (figs. 1b and 2b).

After one day there was little change except that the edema had disappeared.

After three days there was still some inflammatory reaction but it was turned far lower cells than that found after the stronger solutions. There were very few damaged muscle fibers (figs. 1c and 2c).

By the fifth day there was no abnormality except a narrow scar in which a few dead muscle fibers were included and by the eighth day the appearance might have been passed as normal but for the presence of calcium particles (figs. 1d & 2d).

Extent of Muscle Damage

Measurements of the maximal width of the damaged area caused by each solution from five hours to thirty days are shown in Table 1. The measure means shown are the means from two rabbits killed at each time interval.

TABLE 1.—MAXIMUM WIDTH OF DAMAGE AFTER INTRAMUSCULAR INJECTION OF PMS AND SALINE 15% TO THIRTY DAYS

Time after injection	Width of muscle damage mm.							
	PMS				Saline			
	20%	25%	1:1	1:2	0%	4.1%	4.1%	5%
5 hours	4	2.5	1.75	1.75	4.75	5	1.5	1
1 day	2.5	1.75	<1	1	3.25	2.5	<1	0
3 days	3.75	1.75	<1	1	1.75	5	1.5	<1
5 days	2	<1	normal	normal	1.75	1.25	normal	normal
8 days	<1	normal			1	<1	—	—
15 days	<1	1			1	<1	—	—
28 days	<1	normal			<1	normal	—	—

It is clear from these figures that the extent of damage is as greater after PMS than after the corresponding concentration of saline is previously, PMS is not locally destructive in the concentrations used and the damage apart from mechanical trauma in the early stages is an edematous effect. The damage done is clearly related to the concentration of the solutions and there is a marked falling off of its extent as the concentration falls from 25 to 15 per cent of PMS or from 5 to 4.5 per cent of saline. Further dilution makes little difference. Recovery was almost complete in a week even after the highest concentrations which were used.

PART II

EFFECTS OF HYPERTONIC SALT SOLUTIONS ON HUMAN VOLUNTARY

Since the rabbit experiment had shown that intramuscular saline up to 7.5 per cent. has no permanent effect, a series of injections was given to human volunteers to determine how concentrated a solution could be injected without the injection becoming unduly painful. This is important as for therapy relatively large amounts of saline are needed.

In all forty-four injections were given to 28 subjects, no more than two being given to any one subject. The sites were the gluteal region and the outside of the thigh and the injections were given as rapidly as possible through needles about 0.6 mm. in external diameter. The concentration of the saline tests, which were sterilized by autoclaving, varied from 1 to 5 per cent. and the volume injected from 1 to 3 ml.

Since it was necessary to rely on the subjective impressions of the volunteers, any quantitative estimation of the effects was almost impossible but when the more concentrated solutions were used a crude test was made for any gross interference with function. The subject was asked to pinch several times off one leg and put a mark on the wall as high as he could with an index finger. After time for a rest, he was given an injection in the upper part of the same thigh and then asked to repeat the pinches and the heights achieved before and after injection were compared.

RESULTS

The effects of intramuscular injections of hypertonic saline in human volunteers are summarized in Table II.

The estimation of any painful sensation in the experiment is complicated by the fact that there are three possible causes of pain:

- (1) The pain of the needle
- (2) Stretching of muscle by the rapid injection of fluid
- (3) Osmotic effect of hypertonic solutions

The first of these may be neglected for a sudden jab with a sharp needle is almost painless. The other two may be easily confused but it is likely that the effects can be separated in some cases. If the pain is due to muscle stretching it should be felt during the injection, but if there is a delay of a few seconds or more, the subsequent sensation is more likely to be due to an osmotic effect, each delay was in fact noticed only after the more concentrated solutions. The immediate sensation, when it occurred, was variously described as "like a blow," "tightness," "cramp" or "sharp pain." It is probably that all these descriptions mean much the same thing and the tendency of the same description to be given by several members of the same batch of subjects may be evidence of collusion. Such sensations were always transient.

The descriptions in Table II "stiffness," "ache" and "burns" also appear to be degrees of the same sort of sensation. Usually their appearance was delayed, sometimes the ache was worse after a minute or two and after 7 and 5 per cent. solutions it lasted five minutes or longer. It seems reasonable to conclude that the ache is an osmotic effect. When symptoms lasted

TABLE II.—Effects of Intramuscular Injections of Hypertonic Saline on Human Voluntary

Case number	Hypertonic sol ¹	Site	No.	Description	Duration	Function
1	1	Chest	4	Nil	—	Not tested
1	1.5	Chest	4	1 set 1 slight weakness	-1.5	—
2	1	Chest	2	Nil	—	—
2	1	Thigh	2	1 set 1 slight, leftward	-1.5	—
2	1.5	Thigh	2	1 set 1 slight, leftward	-1.5	—
3	1	Chest	2	Nil	—	—
3	1	Thigh	2	Light blow followed by ache	-1.5	—
3	1.5	Thigh	2	Light blow followed by ache	-1.5	—
3	2	Thigh	1	Light blow followed by ache	-1.5	—
4	1	Chest	2	1 continuous 1 tremor	-1.5	—
4	1.5	Chest	2	1 set 1 slight burning	-1.5	—
4	1	Thigh	2	1 set 1 blow followed by ache	-1.5	—
4	1.5	Thigh	1	Tightness	5	—
5	1	Thigh	1	Nil	—	—
5	1.5	Thigh	1	1 slight sharp pain	—	—
5	2	Thigh	4	1 blow followed by ache	-1.5	—
5	2	Thigh	4	1 cramp 1 ache 2 blow followed by ache	-1.5	—
6	1.5	Thigh	1	Cramp and numbness	5	unimpaired
6	2	Thigh	1	Cramp not painful	-1.5	—
7	1.5	Thigh	2	1 immediate numbness ache	5	—
				1 stiffness after 4-5" water after 1 "	-10 hours	—
7	2	Thigh	2	Stiffness after 1 1/2" water after 1 "	—	—
8	1.5	Thigh	1	Blow after 1 1/2" ache after 1 "	—	—
9	1	Thigh	1	1 numbness hours	—	—
				1 numbness strong ache 1	—	—
				1 blow immediately ache getting worse 2	—	—

larger than five minutes there is no record of their exact duration because the subjects were allowed to go after improvement was apparent. When questioned next day they could say nothing more than that the pain ceased to trouble them shortly after they left the right halves.

The pain produced in all cases was apparently surprisingly little though it was reported to be more prolonged and possibly more severe at concentrations above 4 per cent. This agrees fairly well with the rabbit experiments in which a marked increase in muscle damage was found on raising the concentration of saline from 4.5 to 8 per cent.

The 10 subjects who received the most concentrated solutions performed the "jumping test" for activity and function as described above. Their performances before and after injection did not differ so there was no evidence of any impairment of function.

The 8 subjects who received 3 or 6 per cent saline were asked next day

how they would like to have the injections repeated. "4 (3 in each thigh) and they would not like it for an experiment but would have no hesitation if it had a possible life saving value." "5 said they would not mind and I said he would have a go for his belt."

Subsequently intra-femoral volumes of P.D. were injected into the gluteal region of human volunteers as part of an experiment to determine its value in the prophylaxis and treatment of poisoning by anticholinesterase agents. A 20 per cent. solution produced a slight ache at the site of the injection which lasted from two to four hours. It was noticeable and was aggravated by exercise. 15 per cent. solution produced only negligible discomfort if the volume injected was less than 2.5 ml. If it was 4 ml there was a slight ache which lasted up to four hours. The patient was not seriously disturbed by it and in fact, was not conscious of it at times when his exercise was absorbed by something else.

Conclusions

It is of interest that an increase in concentration of saline from 4.5 per cent. to 6 per cent. produced a marked increase in muscle damage in rabbits and this was the very range over which there was a definite increase in the severity of the symptoms caused by human volunteers.

If it is necessary to give intramuscular injections of hypertonic solutions, it would appear to be desirable to limit the concentration to the osmotic equivalent of 4 per cent. saline and at that concentration not more than 1.5 ml. should be injected into the same site.

Summary

The nature of muscle damage caused by a given weight of sodium chloride increases with the concentration of the solution although the volume injected becomes correspondingly less.

The muscle damage produced by 0.36 ml. of 7.5 per cent. saline is trivial by the end of eight days.

The pain caused by the intramuscular injection of hypertonic saline up to 2 ml., though slight, tends to become more severe and of longer duration as the concentration rises above 3 per cent.

An intramuscular injection of 2 ml. of 8 per cent. saline does not appear to cause any impairment of function.

If hypertonic solutions have to be given intramuscularly it is suggested that the concentration should be limited to the osmotic equivalent of 4 per cent. saline and, at that concentration, not more than 2.5 ml. should be injected into the same site.

Acknowledgements

My thanks are due to certain members of the staff of C.D.C.E., Porton to Dr W. S. B. Luckell for permission to publish this article, to Mr F. Rogers who cut the sections, to Mr Codrington who took the photographs and to those members of the Armed Forces who, having volunteered to be the subject of physiological experiments, allowed me to distress them in the manner described.

THE APPROACH OF THE NAVAL MEDICAL OFFICER TOWARD PATIENTS WITH SKIN DISEASES

By

Surgeon Commander R. W. B. SCOTT, R.N.

The aim of this article was originally intended to be the "Emergency Treatment of Skin Diseases" in order to fit in with the title of a series. However, as most doctors are always reminding the dermatologists, patients with skin complaints seldom show skin, but do they usually call out their medical advisors in the middle of the night. It is therefore felt that the above title is somewhat more apt, and it is hoped that some of the points raised may be of help to Naval Medical Officers as they pass a sleep for the first time.

It is an accepted fact that the teaching of Dermatology is currently explored in the medical curriculum, and as a result it seems to most Surgeon Lieutenants as quite a shock to find that perhaps a quarter of their daily practice concerns skin problems. It would clearly be impossible in the space of a few pages to deal with the diagnosis and treatment of even the commoner conditions that are seen in the Royal Navy. There are many textbooks available which deal admirably with this side of the picture, and one such book is normally included in the medical library supplied to all ships carrying Medical Officers.

This paper then is an attempt to help medical officers (especially those newly posted) to understand some of the skin problems that will not be discussed in the usual textbooks.

"Why do people develop skin conditions, and why do they so often get worse even when treated?"

ENVIRONMENTAL FACTORS

The skin is of course more than just a covering, to protect the various organs and prevent them from dropping around and looking untidy. It is amongst other things a true mirror of the mind, reflecting the emotional battles and frustrations to which every individual is unavoidably prone. The boy then who signs on for nine years is a fellow of which he knows very little beyond what he sees on the Recruiting Posters, none finds that rather than go to see the world, he spends most of his time doing boring, and often manual routine jobs in barracks or similar establishments. Alternatively the lad who has failed controlling authorities in childhood may find it impossible to accept the discipline of the Service, and this inability to adjust is without doubt an aggravating factor in (if not the, actual cause of) many dermatoses.

and an attempt should be made by the doctor to get inside the patient to appreciate a little of the problems which confront every human being, and to understand how he is reacting to them. The Divisional Officer and the Chaplain may be able to help here.

ENVIRONMENTAL FACTORS

It is inevitable that the temperature of the skin of the Cook in the galley or the sailor working in engine or boiler room, is higher than that of a man working in cooler surroundings. This leads to increased skin vascularity and hypersecretory. Anyone who has suffered from an varicose lesion caused by an insect bite will be aware of the almost instantaneous effect of a hot bath and of the uncontrollable desire to rub and scratch.

Frost lesions are particularly common in such workers, partly because the nature of the job makes the wearing of protective boots more or less essential. As a result the feet are bathed in a constant liquid of water which cannot evaporate, and this not only encourages fungous infection but may also lead to maceration in the dye in socks or leather.

Prickly heat, and its tropical form *prurigo* under conditions of heat especially when combined with high humidity. Workers in hot spaces are also especially prone to the so-called "dyshidrotic" eczema or dermatophytosis of one (or more) so-called "so-called" because there is no clear evidence to this conclusion that there is any true dysidrosis of the sweat mechanism. Incidentally, this condition which in its acute stages occurs only on the hands and feet, is usually always misdiagnosed as a contact dermatitis due to oil and grease (see contact factors later).

For these reasons it is essential that workers in hot spaces reporting prickly heat, sweat rashes, and maceration or infection due to them should be removed as soon as possible from the adverse environment, before too much damage is done.

In warm climates this skin often reacts badly to simple work clothes and the advice of an expert should be sought as early as possible.

THE SHIRT OR CLOTHES

The uniform "square rig" dress was modified in 1957 and from a skin aspect this change was well overdue. The type of a rating's struggling tunic or coat of the old type rough serge jumper was enough to bring some of sympathy into the eyes of any medical officer involved in Dermatology. The quality of the material has now improved. The cut is on the loose side and the provision of a zip makes dressing and undressing less of a Herculean task. Nevertheless, most sailors suffering from any condition that leads whatever the cause, will surely always complain that the clothing is much worse when they are in the "square rig" especially in winter when the rough weather gear is also worn.

It is probable that true wool or serge sensitivity never occurs. It is the worker's stress and "irritation" of the clothing that cause most of the trouble.

In many cases of dry "ulcerations" around the forearms, the removal of the sleeves of the jersey and the lining of the jumper with silk or smooth cotton material will generally help to make life tolerable—the alternative is the enforced wearing of the No. 5 rag when on duty, and civilian clothing when going ashore. This can generally be arranged, except for ratings employed on special duties for which a uniform uniform is essential.

Sweat can sometimes be a problem. Dyshidrotic conditions and fungous infections tend to be aggravated by the wearing of rubber-lined footwear worn as plimsolls or rubbers. It is fortunate that for most persons at sea in warm climates sandals are accepted as "the rag of the day." But there is warning must be given. Although it may be possible to cut down the incidence of fungous infections, "especially of the toe chills," the innumerable subjects are often created by the leather sandal straps, and a skin problem arises. It is of prime importance that the medical officer should not regard all such skin lesions as trivial or trivial. They vary widely in type, and if not, will always be aggravated by fungicide.

Contact Dermatitis

Contact dermatitis is comparatively rare on the Service. This applies even to those "baggies" of the engine room, oil and grease, which seldom, if ever, cause trouble on the normal skin. Every engine room rating is taught by his superior that sooner or later, if he is not careful, he will get oil dermatitis. It is usually for this reason that many apply so-called "barrier cream" before work. Such creams generally incorporate a soap so soluble that it is readily removed after work by simple washing in water. As such, they have much to recommend them, the alternative being turpentine, kerosine, petrol, etc., all of which are dehydrants and therefore liable to cause dermatitis. But it must be remembered at the same time, that soap is also a dehydrant, and therefore that the "barrier cream" may be the cause of the very trouble it is intended to prevent. Porter (1939) has drawn attention to the inefficiency of most "barrier creams" in protecting the skin from damage. When a man returns with no eruptions on the hands, the two main problems are: (a) Is this a contact dermatitis? and (b) if so? (2) What is causing it? It takes many years of experience to be certain of the answer to the first question in a great number of cases, and dermatologists, etc., all too aware of the difficulties involved. It would not be possible here to touch the fringe of the subject, except to point out that dyshidrotic eruptions and combination eruptions are commoner than contagious dermatitis. And having diagnosed a contact dermatitis, it should not be presumed that the cause is necessarily the obvious one connected with his occupation. Other factors to consider (apart from barrier creams, and changing methods after work as already mentioned) are: (1) The use of detergents. Most sailors have to do their own laundry (ditching), and this involves immersion in the scuttles for half an hour three times a week in a fairly strong solution of soap or one of the commercial detergents, (2) Fibrous, which may involve the use of both primary

and attending agents. But whenever the agent (contact or continuously) the Medical Officer will appreciate the necessity to prevent further aggravation by the use of dressings, both on and off duty.

The Skin or Infection

(1) *Sores and eruptions*—Erythematous and streptococcal skin lesions (folliculitis and impetigo) arise so commonly under Service conditions in stations in hot climates with infectious swarms that dramatic eruptions of a bullous type—the so-called tropical pemphigus¹. This condition bears no relation whatever to the very much more serious but fortunately rare type of pemphigus occurring in late life.

It is hardly necessary to stress the danger of food handling by persons with such infections. Episodes of severe food poisoning due to staphylococci are not entirely a thing of the past, and although the consequences of impetigo under adequate treatment is comparatively few, such cases are best isolated (at least for the first few days) in the Sick Bay, if merely for courtesy reasons.

(2) *Fungi*—There is a very common tendency amongst medical officers to diagnose every skin lesion as the first as being due to a fungal infection, and then to treat it accordingly with a succession of fungicides with disastrous the almost inevitable result. Although it is often possible to demonstrate by microscope the presence of fungus in the toe clefts (even if clinically external but) the diagnosis of fungi should not be the first thing that comes to mind except in cases of

(a) Simple excoriation of the toe clefts

(b) Unilateral verrucous lesions on the sole, generally with an undermined spreading edge (such conditions, if left untreated, may of course spread to the opposite side, but this generally takes at least a week or two).

Lesions on the dorsa of the foot and symmetrical vesicular lesions on the sides are likewise indicative of origin and are almost liable to be appreciated by fungicides. Fungal infections very rarely occur on the hands and unless mycotic can be easily demonstrated by microscopy such a diagnosis should not be made except by a dermatologist, again because of the danger of inappropriate treatment.

The unexcused toe cleft is mainly important from an epidemiological aspect, especially in warm climates where the conditions encourage the spread of such minor infections, and secondary contamination by rubbing and scratching. Showers and washpans have been shown to collect infected skin scales which can then be picked up by other unaffected persons—methods of preventing this have not been satisfactorily worked out, but the medical officer should keep the ship's company aware of the danger and encourage the only repeating of waste lesions. Regular foot examinations of men by the medical officer and staff are also recommended.

(3) *Scabies and pediculosis*—These are common in the Service, but from a Public Health point of view should not cause much anxiety. The use of command blankets, e.g. by washkeepers, may cause trouble, but even over

are sporadic, and very often recurrent in origin. The danger of medicamentous reactions following the treatment of such cases cannot be overestimated and it is imperative that the Sick Book Staff should clearly understand the instructions for treatment. It has been necessary to shut off the pulse, limit the quantity of perspiration, restrict food intake, but with evident exceptions, such measures are unnecessary. provided a second application is made seven to ten days after the first, to insure destruction of the young lice as they hatch out. With ratings on draft it is probably safer to keep to the old-fashioned shave-off routine to prevent errors from creeping in.

(4) *Other points*.—This can be quite a problem in some climates. The normal protective layer of wax becomes softer and easily removed by over-cleaning, e.g., with a towel after bathing, and the external ear like the ear drum will then readily break down and become infected if allowed to remain continuously moist.

For those whose ears always become infected in the tropics, there is probably no answer apart from insistence of category to temporary discharge.

The medical officer's duty however is to draw attention to the ship's company to the problem, and to stress the importance of keeping the external auditory orifices as dry as possible without interfering with it by the insertion of something etc. Bathing caps, cotton wool and soft paraffin plugs, and simple methods of cleaning the ears after bathing by pressure against closed nostrils, are all useful preventative measures. As most men enjoy sea bathing when abroad, they will probably co-operate willingly, if the alternative is stoppage of the privilege of being allowed in the water.

The subject of infection cannot be closed without reference to the "Lepus complex". Most persons with skin diseases are seriously worried that they have "picked up a germ"—this applies especially to conditions such as acne and psoriasis, where the anxiety over the possibility of contagion leads to considerable embarrassment, and an understandable unwillingness to expose their skin to the view of their intimate, who will only deal with the inevitable skin trouble remarks. As a result the patient tries to hide himself away in a world of his own, far from prying eyes, and thus tends to avoid the very treatment, such as baths and creams, sea bathing and exposure to sunlight, which would do him most good.

With much often protesting with paranoiac delusions, patients in dermatological hospitals usually plague the original cause of the condition was "Lepus" and combat with widespread confusion and anxiety. It is perhaps hardly surprising that even medical personnel, including Surgeons, Purser, Sickens, Sick Book Staff etc., will drop to the old-fashioned attitude with regard to the infectivity of skin patients. It is extremely proper to be helpful to relieve such cases away from other harmful events where there are too many spots or blisters. While it would of course be foolish to treat patients with gross staphylococcal or streptococcal skin lesions cheek by jowl with "clean" surgical cases, it is the bounden duty of the enlightened medical staff to do all in their power to convince the average skin patient that he is not

suffering from anything in any way contagious that should prevent him from continuing normal social intercourse with the rest of the world.

THE CAUSE OF LACK OF RESPONSE TO TREATMENT

The medical officer is often surprised to find that the skin patient gets worse in spite of treatment. A great offence will have been a rash, which he supposes that it may have been the treatment (or) that was responsible for the progress in the wrong direction. It is unfortunate that medical positions are increasingly advancing towards that carry an undesirable risk. Erythema dermatologists have been known to initiate a single treatment of over £1 000 per annum in private fees. In this category well-known trouble makers are the typically applied sulphacetamide paraffin and the later antibiotics. Embolismic events, most if not all, of the foregoing, benzyl benzoate (in the treatment of scabies), and the anesthetic oil-soluble.

But there are more subtle reasons for failure. Comparatively harmless mechanisms can cause trouble when used in the wrong stage of the disease. Colloidal linens, for instance, suitable for the relief of urticaria and eczema in the unbroken skin will generally cause a horrible contact rash if applied as a weeping surface. Greasy ointments should never be applied in floured or hairy areas.

The method of application is also of prime importance, and it is assumed that the Sick Berth Staff should be carefully trained in the simple details of treatment. Pads, for instance, should normally be applied in the form of pressure spreads on calico or other smooth material *over* rubber *up* the skin. Wet dressings, useful in the acute exudate phase of a dermatosis, should always be kept wet, never allowed to dry on the skin by evaporation. Acute discharging lesions should be managed in well with the finger tips, not just dabbed on in a rather half-hearted way.

Whatever the treatment may be, it will do very little good if the patient is not prevented from scratching and scratching himself at the slightest provocation. Occlusive bandages may help here, but in many cases disinfectants to hospital for urticaria and other eruptions may be the only answer.

CONCLUSIONS

We have covered some of the skin problems which are likely to arise in the daily practice of the medical officer in the Royal Navy. It is hoped that the skin will be regarded as an organ to be treated as seriously as any other when it goes wrong, and that a conscientious attempt will be made to understand the significance of some of the common eruptions. The red wheals come so often to cover the body surface that they fall away and some of the foregoing measures will be recalled. It is then and then only that treatment will make sense.

Clinical Notes and Cases

DROWNING, FOLLOWED BY ACUTE PULMONARY EDEMA

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Lieutenant Commander B. B. JACK, R.N.

Case 12261 on 24th November 1938 a Chief E.R.A. was standing on board his submarine, carrying his head chest. He fell from the casing and was found on the middle tank with his head under water. Estimated time in the water was 30 to 60 seconds.

Artificial respiration was not required. He recovered consciousness in a few minutes, and was taken to a neighbouring Sub Boy. There he remained unconscious. The breath and vomit smelt of alcohol. He was very excited and would not be still. He could not remember anything about the accident.

On examination there was a lacerated wound over the right eye-lid. There was no evidence of bone injury. Pulse 85 and of good volume. No systolic blood-pressure measurable at wrist. C.R.B.—right apex and middle sharply. Rhonchi in right apex.

He was discharged to hospital where on a possible fractured skull and tendency to develop pulmonary pneumonia. He died on 19.12.1938 shortly after admission.

Post mortem examination was performed on 1st December. Post mortem findings:

External Examination.—The body is of a well built middle aged male. There is a good layer of subcutaneous fat over the lower chest and abdomen. A few insipidous pieces of lightly brownish and somewhat firm, brownish skin over the right eye-lid. There has been slight tearing from the nose. No other cuts and signs of injury are noted.

Internal Examination.—There is the left lung shows markings with pleural fluid over the lateral aspect of the lower lobe, and on the lateral aspect of the lower part of the upper lobe. There is congestion of, right and left lungs. The lateral pleural spaces appear clear. The upper portions of old well healed pulmonary scars. The lungs are heavy (R.L. 1200 G.M., L.L. 1050 G.M.), only the lower marginal parts being severely involved. Rhonchi are mostly coarse and wheezing rather than fine crackles. There are no inspiratory sounds over the lungs, especially dorsally and present against the ribs. There is no evidence of bleeding of the major vessels or of the trachea.

The mediastinal area is healthy. The right atrium and ventricle are dilated and contain red blood clot. There is no increase in the firmness of the septum, particularly over the right ventricle but an equivalent firm induration of the upper part. The pericardial cavity is healthy. The left ventricle is normal. The coronary descending branch of the left coronary artery shows evidence of disease with no significant stenosis in the middle of the vessel. The left coronary branch and the right coronary artery are normal.

Abdomen.—The lungs are enlarged, there is no evidence of any gross changes in the structure of the stomach.

membranes and the wall of the stomach, the entire part of the stomach is markedly congested. The stomach is dilated and contains 1 1/2 to 200 cc. of green fluid mixed with a few small white food particles. The pylorus is slightly above from the stomach contents. The duodenum is indistinctly visible as healthy. Against the stomach congested, the plethoric stomach shows no significant changes (11/12 (20 North) pylorus open, myocardium healthy). The urinary bladder is empty.

Head and Neck. The internal wound shows for each system prognosis over the left lobe. The underlying bone is not damaged. There is no evidence of fracture of the skull. The brain shows moderate congestion, not there is slight swelling of the subarachnoid space with blood over a small area of the left frontal lobe on the lateral surface just superior to the middle of the left hemisphere. There is no evidence of damage to the brain underlying the area, nor is there any evidence of brain damage elsewhere. There is no evidence of mechanical asphyxial process. The bones of the mouth and neck are normal. The larynx is normal.

Comment

There is no evidence of the head injury directly causing death. It is very possible however that a state of consciousness existed. The clinical history is against the being a straightforward drowning, and although the lungs in post-mortem were autologous I find that an element of pulmonary system supervened after the man was removed from the water. It is possible that instant fluid was retained at the time of the immersion.

There is no evidence of asphyxia of alcohol in this case. I have taken expert histological opinion and it is considered that analysis of the post-mortem material available would not be helpful in measuring the amount of alcohol taken before death.

Histology Report received 19th December. "The large bronchi show intense submucosal capillary congestion with a very fairly inflammatory cellular infiltration. The submucosal pleural aggregates show evidence of acute necrosis. The superficial epithelial layers of the bronchial mucosa have been shed, but it is not certain whether or not this is a post-mortem artifact."

"The lung sections confirm the presence of inter-alveolar edema, and marked congestion of the alveolar capillaries. There is also a moderate amount of disorganization of alveolar lung cells. A few small areas of inter-alveolar hemorrhage are seen."

"The smaller bronchi and in particular the bronchioles show shedding of the epithelial layers. There is underlying capillary congestion and a distinct polymorph leucocytic infiltration is present."

"No pathological reaction of myocardium suggests a myocardial

Opinion.—"The microscopic appearance in the bronchi and lungs, particularly the presence of such a well marked reaction as the bronchioles following so quickly after immersion renders the impression that instant asphyxia in addition to any water was inhaled."

Comment

The water around the submucosa concerned is normally covered with a film of oil and is often contaminated with detergent "foam" from the ship's laundry

The pathologist was asked to submit 10 to 15 smears (just enough to stain) stained 1% polycarboxy eosin. He replied as follows:

"I have a feeling that if Duval-Johnson exists the threat of doing it is a lot better than present in sufficient concentrations to have been seen in the post mortem. I am afraid that I do not share the interest in respect of duvalgens. Any duvalgens isolated at the time of necropsy would, of course, be difficult to detect in post mortem, and would not be detectable in histological sections. The lung sections were examined in ultra violet light in the hope of detecting any of the fluorescent five-day which is often incorporated in duvalgens, but the results were negative. This, of course, does not exclude the possibility that duvalgens were situated."

Is it possible that a gastric cancer could have been detected? The opportunity to say what are symptoms of these described following pharyngeal or oesophageal infection. I am afraid that there would be no opportunity, and it would be, owing of me to offer a stronger opinion in the circumstances.

ACKNOWLEDGMENT

My thanks are due to Dr P. S. Macfarlane for permission to publish this report.

A CASE OF THE DUBIN-JOHNSON SYNDROME

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J. Morgan, Commander J. SELLIE, RN

It has long been known that jaundice may recur many times without causing any serious disability to the patient or producing any evidence of liver damage.

Between 1920 and 1935 Gilbert and his colleagues reported on a number of patients with recurrent, familial non-obstructive jaundice. The features of Gilbert's disease, as known of mild jaundice with upper abdominal discomfort and fatigue. There is no evidence of hemolytic jaundice and the serum bilirubin, liver biopsy and liver function tests are all normal. The clinical course fulminant is not sustained and urinary urobilin and urobilinogen are absent. The serum bilirubin is increased and varies between 3 mg to 5 mg per cent. The liver and spleen are not enlarged and the diagnosis is usually reached by process of exclusion.

Turner Symes (1937) reported a case of Dubin-Johnson Syndrome with melanosis as an additional feature, whilst the late Marcus (1938) reported on black liver jaundice. He reviewed the history of familial non-hemolytic jaundice and gave a list of authors who have described such cases—the included Van den Berg (1914) who called the condition physiological hyperbilirubinemia. Then Macfarlane (1938) used the term scarious intermittent jaundice.

Stallory (1933) investigated a case of recurrent jaundice where the liver architecture was normal and the only abnormality was clumps of golden brown granular pigment within most of the liver cells but not in the Kupfer cells.

This finding was distinctly not consistent with Gilbert's disease. Spies and Nischan (1962) and PPS¹ listed 4 more patients with the golden brown pigment in the liver cells and they reviewed their records in Dublin and Johnson, of the Armed Forces Institute of Pathology in Washington.

Dubin and Johnson (1954) reviewed about 4000 liver biopsies and listed 6 more cases. These two authors then published a detailed account of the 13 cases. They regarded the condition as distinct from Gilbert's disease. Thus they described a previously undefined and distinct entity now known as the Dubin-Johnson syndrome.

Dubin (1958) followed up the progress of the original 13 cases. Added 11 more from the Registry of Hospital Pathology and reviewed 27 more—these latter mainly from United States of America but also from Canada, Israel, Czechoslovakia, West Germany and 2 from the Netherlands, Hospital Humberstadt.

Since then Baker and Reed (1959) have published 3 more from Humberstadt.

Readers are referred to Dublin's 1958 review for a full account of the syndrome, but briefly it consists of recurrent rural (familial) jaundice commencing at birth or in puberty and associated with melanin (pigment) and upper abdominal discomfort, bile in the urine, normal stools, often an enlarged liver and a direct Van den Berg reaction.

The syndrome has been mistaken for infectious hepatitis or a relapse of hepatitis or for obstructive jaundice.

The surgical importance of the syndrome is emphasized by the fact that of Dublin's series of 30 cases, 17 were only diagnosed after section of the liver at laparotomy misdiagnosed as fluid or obstructive cause, for jaundice.

In view of the uncommonness of the syndrome and that its recognition may save an unnecessary laparotomy it is thought worth while to publish this account of the condition in a British soldier, even though the essential features were pre-arranged and direct light is shed upon the pathology.

The patient, a Scotswoman doing his National Service in R.F.M.C., was found on a routine examination on 17.4.58 to have slight jaundice of the conjunctivae. He was then 18 years old. His serum bilirubin was 2.5 mg. per cent. He was kept under observation on his next visit on 21.4.58 he had vomiting after all meals and diarrhoea lasting about twenty-four hours. A diagnosis of gastro-enteritis was made and he was given a three-day course of sulphaguanidine.

He gave a history of jaundice about a year ago, prior to joining the Army. His doctor had confined him to bed for six weeks. He says he felt quite well during this time and on being allowed up he returned to work.

On 28.4.58 as he was still jaundiced he was admitted to R.N. Hospital Plymouth. No further points of interest were decided on his medical history except that he remembered that on several occasions his urine had been darker than normal.

Family History:—His mother has been on vagus oil-bath due to gall-bladder

troubles, but his father had jaundice. His father (deceased) and his mother are also good health and have never had jaundice.

Clinical examination showed a well-built patient with slight enlargement of spleen. The liver was enlarged to two fingers below the costal margin and was slightly tender. There were no other abnormal signs. The nose contained bile stria and bile pigments but was otherwise normal. The microscopic appearance of the stools was normal.

Investigations—Blood: Hemoglobin 15.3 g., P-C.V. 46, W.B.C. 7,500/cmm., all of which 43 per cent were polymorphonuclear leucocytes, 47 per cent lymphocytes, 7 per cent monocytes and 3 per cent eosinophils.

The Van den Berg reaction was direct positive and serum bilirubin was 2 mg. per cent.

Liver Function Tests: Alkaline phosphatase 14.6 King-Armstrong units. Thymol turbidity 7 units. Cholesterol 200 mg./100 cc. serum proteins 8.6 grams/100 cc., albumin 4.5 grams/100 cc., globulin 4.1 grams/100 cc., A/G ratio 1.1. A diagnosis of infective hepatitis was made and he was treated with bed rest and a low fat diet. By 23.5.58 he was no longer anorectic and his nose was normal. After a period of Bed Leave he returned to duty.

Second admission 26th August, 1958. For the previous ten days he had a common cold accompanied by severe anorexia and some epigastric discomfort. Again his unit Medical Officer observed some signs in conjunction. The serum bilirubin was 3.1 mg. per cent.

On admission apart from the anorexia and palpable liver there were no abnormal physical signs and he did not appear ill and he felt well. The nose contained bile pigments but was otherwise normal, no rotator head testing. The TPR chart was normal.

Investigations revealed that Van den Berg was direct positive and the serum bilirubin was 6.8 mg., but haemoglobin, W.B.C., differential count, E.S.R. and alkaline phosphatase, thymol turbidity and serum proteins were again within normal limits.

He was treated with bed rest and low fat diet. Seven days after admission he had a bout of vague pain in the right upper quadrant of his abdomen. This lasted about twenty-four hours and was unaccompanied by any abnormal signs other than the anorexia and palpable liver and there was no alteration in his TPR chart. His anorexia gradually disappeared and by 4th September, 1958, serum test for bile pigments was negative. On 10th September serum bilirubin was 1.6 mg. and Van den Berg reaction direct positive.

A diagnosis of relapse of infective hepatitis was made and after a period of sick leave he returned to duty on 5.10.58.

Third admission 11th November, 1958. He attended as an outpatient and it was noticed that the conjunctivae were again anorectic and also the liver enlarged to one fingerbreadth. The nose was dark and contained bile

payments. His EPR were normal and he did not feel unwell, but was admitted for further investigation.

The Van der Berg reaction was direct positive and the serum bilirubin 2.4 mg. per cent.

He had a thymogram using isotopic technique. There was a very poor concentration of the radionuclide throughout the examination. The hepatic duct and bile duct were not sufficiently well displayed for comment. The outline of the gall-bladder was normal and no filling defects were displayed. A good contraction was observed after a fatty meal.

Conclusion. Poorly functioning gall-bladder.

Though there was no interest it was thought wise to consider the possibility of a hemolytic process for the recurrent jaundice but Coombs test was negative and the red cell fragility test was within normal limits.

Because of the direct positive Van der Berg test he was referred for a surgical opinion. The surgical specialists agreed that carcinoma pancreas with a direct positive Van der Berg reaction was suggestive of an obstruction but he thought that there were several features against it. He thought that there was no radiological evidence of a diseased gall-bladder, also there was no acid pain, nor had there been any jaundiced liver. He stressed the value of the test for urinary urobilinogen which is low in obstructive jaundice and raised with liver cell damage. (This was done and found to be 0.96 Ehrlich units—within normal range). In conclusion he thought that the jaundice was not post-hepatic but intrahepatic; in view of the normal pulse and temperature the cause of the jaundice was probably an abnormality of the bile ducts and not a toxic process.

The patient returned to light duty on 5/12/58 with a diagnosis of extrahepatic jaundice and for review in a month's time.

Fourth admission (27th January 1959). A competent driver on 19 1/2 hr and he felt quite well but had some attacks of slight pain under his right lower ribs each lasting about a quarter of an hour. He had also had occasional bouts of nausea but no vomiting. As he still had a slight icteric tinge to the conjunctivae and liver was enlarged to one fingerbreadth below the costal margin he was readmitted.

The serum contained bile pigments and Van der Berg reaction was direct positive while serum bilirubin was 1.8 mg. per cent. Liver function tests were within normal limits. Urinary urobilinogen was 0.1 Ehrlich unit. The bromsulphalein test—done when jaundice was very slight showed no dye retained in the serum after 45 minutes. Hematocrit 58 per cent. Erythrocyte count 4.1 per mm³. Direct Coombs test negative. Papanicolaou negative on all slides. The haemogram and chest radiograph were normal.

At this stage we were faced with the problem of making a diagnosis which would account for at least five relatively transient attacks of jaundice in two years. The procedure leaving him in good health, without any evidence of systemic or hemolytic disease but with bile in the urine. It seemed that the Dubin-Johnson syndrome covered the requirements of such a diagnosis.

the pigment in liver tissue. The total bile pigment in the liver is 1.0 g per cent of liver wet the above-mentioned bile pigment. The pigment is brown, a leaf-like body. These observations are at least in part similar to those reported in infantile jaundice and the adult cholestasis.

Antibiotic administration of serum bilirubin was done after the biopsy to increase the proportion of direct to indirect bilirubin and result was:

Total serum bilirubin 1.76 mg. per cent

Direct bilirubin 0.66 mg. per cent. — 36 per cent

Indirect bilirubin 0.70 mg. per cent. — 40 per cent

About three weeks after the biopsy, the patient was feeling quite well, there was no nausea, though a trace of bile pigment was occasionally found in the urine. He returned to light duty and was later convalesced from the Army.

Discussion

Differential Diagnosis

Obstructive jaundice and Gilbert's disease are the two conditions most likely to cause difficulty in diagnosis. Infective hepatitis should usually be excluded because of absence of fever.

Obstructive jaundice is recognized clearly but helpful points in favour of Dubin-Johnson syndrome are the history of recurrent jaundice from birth or puberty, the slight degree of constitutional disturbance and similar history in other members of the family.

Gilbert's disease is very similar in symptomatology but distinguished from Dubin-Johnson syndrome by absence of bile in the urine and by the fact that almost all of the serum bilirubin is indirect or un conjugated form instead of about 80 per cent direct or conjugated. The cholestasis is absent in Gilbert's disease and so is the microscopic appearance of the liver.

Prognosis

The observed duration of the disease in several cases exceeds thirty years. There are three instances of the syndrome in men over 70 years of age who have given histories of bouts of jaundice since infancy. In three patients the liver biopsies revealed normal livers apart from the typical pigment. A bout of jaundice may be triggered off by intercurrent infections, pregnancy, surgical operations, bad diet or other unusual circumstances and alcohol, however.

Gall stones occurred in 50 per cent of Dubin's cases but so far do not appear to have caused obstruction.

Pathological Features

As already mentioned the diagnosis is confirmed by finding the golden brown pigment in the liver cells. The pigment is usually found in a coarse leaf-like distribution and may be in Kupfer cells. A notable feature is the preservation of the normal architecture of the liver. Dubin sums up the biochemical features by saying that the pigment probably belongs to the family of lipofuscin and shares with them properties such as solubility.

agglutinates, heterophasic on polarisation microscopy (brown fluorescence under ultraviolet light, reactions of Mallory's basic fuchsin and positive reactions with Schiff reagents). Melanin is distinguishable by its negative reactions with Schiff reagents and Mallory's stain and Sudan Black B stain.

The pigment in the serum according to Dubou, behaves like bilirubin as judged by Ehrlich's diazotile reaction. The direct reacting substance is a glucuronide of bilirubin.

It seems that in Dubou-Johnson syndrome the liver is able to conjugate indirect bilirubin with glucuronic acid to form direct bilirubin but is unable to excrete it efficiently into the bile. As the direct bilirubin is water soluble it can be excreted by the kidney.

Dubou postulates that there is a genetic defect of excretory power on the liver cells and that it is this defect which is also responsible for the poor excretion of dye in diazotysography and bromsulphthalein dye.

In Child's disease the pigment in the serum is indirect bilirubin so the defect may be in conjugation and so there is no water soluble bilirubin as bile appears in the urine.

TREATMENT

There is so far no known specific treatment and so sufferers from this syndrome should be encouraged to live normal lives as far as possible. It is not altogether desirable that patients with this condition should be accepted for military service as a 'front line' unit, but would be fit for those based on land or communications units or warships. There is no evidence that one is bad during an entire phase or of any value.

SUMMARY

A case is reported of recurrent jaundice diagnosed confirmed by liver biopsy as Dubou-Johnson syndrome.

ACKNOWLEDGEMENTS

I am indebted to Surgeon Lieutenant-Commander E. Maclean, R.N. for his careful notes on this patient, Dr J. J. Y. Dawson for the liver biopsy, Surgeon-Commander P. J. Fuller, R.N. and Surgeon Lieutenant J. D. Rose, R.N., for help with laboratory findings, Dr W. Lundell, for his report on the biopsy material, Surgeon-Commander E. A. F. MacKintosh, R.N., for his radiological reports, Surgeon-Captain M. A. Rugg-Gunn, R.N. for much helpful advice and Surgeon Rear-Admiral D. M. Wilson for permission to publish. Chief Petty Officer J. Colborne and Leading Sick Berth Attendant S. Hammarap for the photographs of the slides.

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A SEVERE CASE OF VON RECKLINGHAUSEN'S DISEASE

BY

Surgeon Lieutenant-Commander W. R. WRIGHT, R.N.

The 43-year-old wife of a Dockyard workman sent for the Families Disease
 Commission of backache and frequency. He sent her into the Royal Naval
 Hospital, Hong Kong, as soon as he saw her.

On examination she was suffering from a most severe form of Von Recklinghausen's
 disease (osteogenic sarcoma).

Irregular masses of flesh were hanging from her body over the whole thorax and abdomen.
 In some areas they were thickly clustered together and the distribution was roughly symmetrical.
 These dependent excrescences had a peduncle with several papillae. Scattered
 over the left parietal areas of irregular light brown excrescences, were present on the body.
 The skin was adherent to the underlying tissue. The feet and hands had been remarkably
 spared so that when clothed, little deformity was apparent.

Her mother had also suffered from the disease, and the patient's mother had been an
 epileptic. They had gradually increased in number and size in the present instance.
 Symptoms had kept her from working since about the year, and she had been
 obliged to call on the doctor now because of the pain in her back. She had a few developed
 a large tumour in the parietal three months, arising particularly from one of the ribs.
 The ribs a finger's breadth were exceeding 2 in. across the left ribs, the ribs were
 parallel to the spine.

It was thought that osteomyelitis offered the only hope of relief for the tumor and she
 was sent home to the United Kingdom.



Left lower lip and white leathery area.



Sarcoma to the left of the tongue.



Right side, on the right side of the tongue.

ACCOMPLISHMENTS

I wish to thank Surgeon Captain L. G. Yendell, Royal Navy, for permission to publish this article. I also wish to thank Surgeon Lieutenant D. A. E. Shepherd, Royal Navy, for taking the pictures.

A FEVER OF 105° F

BY

Surgeon Lieutenant-Commander W. B. WRIGHT, R.N.

A vacuum private soldier was admitted to R.N. Hospital, Hong Kong, with a twenty-four hour history and signs normally diagnostic of bacillary dysentery.

His temperature was 104° F. and he was so ill that he could not be induced to take enough fluids by mouth to compensate for his diarrhoea and fever. Accordingly, a Gert's needle was inserted in the back of the left hand and an intravenous infusion of 500 drops/minute drip commenced.

After fifteen minutes after the commencement of the drip, the patient began to have increasing fever, white stools and rigors. Very shortly afterwards his melting temperature rose to 105° F. (checked several times). His bowels again had continuous, with occasional hiccups, bubbling. The skin was burning and tense. The pulse rose to 140/minute. The blood pressure fell steadily to 90/50 mm. Hg.

A diagnosis of pyrogen reaction was made.

Decline.—The drip was stopped and it stopped down in about 10 sec. when a flat, normal volume drip replaced it for 30 seconds. Then, gradually, the flow of the fluid was raised up to and above an infusion. The feeding was stopped and the patient was covered with a sheet lightly and continuously soaked in tepid water. A large-volume standard O.T. bag was placed on the patient and flowed 200 ml. At the same time the following treatments were prepared and given intravenously: 100 mg. soluble hydrocortisone, 100 mg. Anthon, 100 units of ACTH were given intramuscularly.

In spite of these measures the patient continued to deteriorate. The pulse became uncountable, but blood pressure fell below the systolic. A non-invasive infrared H₂O₂ jet blood-oxygen ratio device. Meanwhile, vigorous respiratory cooling was continued. The skin surface, the temperature remained 100° F. for half an hour and then began to come down. The blood pressure and renal temperature were measured continuously. When the rectal temperature had fallen to 100° F. cooling was stopped. The blood pressure steadily improved to 100–120 (systolic) and the pulse to 120 (about 100) after about 90 minutes from the onset of the emergency.

The patient's consciousness rapidly lightened, but he had two generalized convulsions which were immediately relieved by chloral, given hypodermic 20 and 15 mg. respectively. After two hours he had relaxed into apparent deep sleep. A rapid E.V. drip of normal saline 1 liter was continued twice and the patient's condition (with intravenous administration to a total of about 60 liters in the next twenty four hours) was good.

The patient remained either asleep or in a state of confused consciousness throughout the next subsequent hours and then made an apparently complete recovery.

But although when he was awakened he had lost his ability to be wakened as a reflex on account of chronic myelodysplasia, rapidly reconvertible and reversible anarchy. He was capable of trying a reflex action and forgetting to do so. Prolonged examination of his condition showed a faster rate recovery time.

It is hoped that this organic dementia is not permanent, but meanwhile overlooking in the United Kingdom has had to be considered.

Note.—Inquiries into the cause of this transfusion reaction showed that the apparatus was at fault and that pyrogen could have been present in the tubing. The use of disposable polythene E.V. apparatus must have rendered this accident impossible.

ACKNOWLEDGEMENT

I wish to thank Surgeon Captain L. G. Yonkall, Royal Navy, for kind permission to publish this article.

A CASE OF POST-VACCINAL ENCEPHALOMYELITIS

BY

Surgeon Lieutenant-Commander R. A. L. AGNEW, R.N.

POST-VACCINAL encephalomyelitis is a rare disease. The incidence in different European countries varies between 1 in 5,000 to 1 in 100,000 amongst vaccinees (Peters, 1956). Mortality may be as high as 50 per cent (Sharp, 1936). During the years 1928–44, when the notification of such cases was to the Armed Services of this country mandatory just over 3 million, the reported morbidity in primary vaccinees was approximately 1 in 50,000 (Conyns, 1948).

The disease is much commoner after primary vaccination in children and young adults, though it can occur early after re-vaccination (Nelson and Rubin, 1956). In infants vaccinated during the first year of life, the condition is almost unknown. Two French authors have reported a fatal case in a boy, who was vaccinated on the same occasion with smallpox and BCG vaccine, two days before his first birthday. Twelve days later he developed vomiting and morbillific symptoms. Despite heroic treatment with "Fluids and antibiotics intravenously and 2-3 units of insulin" he died on the third day of the illness (Kapielinski and Hryn, 1954).

The diagnosis, which is essentially a clinical one, is made on the findings of an acute onset of fever, headache, drowsiness and vomiting occurring at some period following vaccination, but usually between the tenth and twelfth days (Girani, 1955). In addition there may be signs of meningeal irritation (ocular pain, body stiffness and neck tenderness, and reflex or sphincter disturbances (Doljopoli, Greenberg, and Asanishi, 1953).

Frequently there is no abnormality in the cerebrospinal fluid, other an increase in proteins (Brain, 1955). There may be a severe local reaction at the vaccination site and this, together with the other clinical features, makes the diagnosis straightforward.

CASE REPORT

A 15 year old boy from the West Country entered the Royal Navy at St. M. S. College on 26th May 1959. Two days later, together with 111 other new recruits, he was vaccinated extensively on the left arm using the modified primary technique. On 30th May, he reported pain with tenderness and slight headache, but in the evening was fine and he had been out on the next morning without symptoms. The following day he was sick again because of severe nuchal headache, now accompanied by photophobia. He complained also of some rheumatic pain and had vomited once. His temperature was 38.4 °C, and pulse rate 96, regular and quiet. From photophobia there was no abnormality in the C.N.S. There was a mild exanthema.

He was isolated, and the following morning, four days after primary vaccination, he was improved though still complaining of occipital headache. His appetite returned so that he had eaten later in the night and his temperature rose to 37.3 °C. Photophobia had returned and headache was now frontal in position.

On examination his mind was clear and he was drowsy. He had exaggerated transient dysphagia at the time of vomiting, but there was now no abnormality of the pharynx or signs of meningeal or pupal. Papilloedema was absent and there was no neck rigidity, but Kernig's sign was positive on both knees. There was no lymphadenitis.

Examination of the fundi revealed generalized papilloedema without change in form. The disc reflexes on the right were stronger than on the left, but both photic responses were feeble. The lower temporal and lower nasal were very poorly performed on the right side the right forehead, occipital and parietal reflexes of both sides and ankles. No other abnormalities were detected in the central nervous system.

A moderate degree of post-vaccinal lymphadenitis was there, and in the absence of more definite signs of meningeal irritation, further treatment was postponed.

The following morning he was improved and his temperature was normal. Photophobia and a positive Kernig's sign persisted, but he had lost the drowsiness and dysphagia of the previous afternoon. Motor power and co-ordination of the limbs had improved considerably. The fundi were normal and there was no cervical lymphadenitis. The vaccine, now not well tolerated and a pupule was forming. The regional lymph glands in the left axilla were tender. Cerebral scans revealed no evidence of a previous vaccination scar. He was started on treatment with *Chloroquine phosphate* 600 mgm twice b.i.d.

At 1800 his temperature rose to 102.5° and he had a recurrence of the clinical picture of the previous infection, except that in this period rapidly progressive, due to extension of the left subhemothoracic abscess. Lung abscesses were excluded. One other fluid under pressure of 100 mm. C.S.F. (no micro-organisms) contained two lymphocytes per c.mm. Protein content was 30 mg per 100 ml. and there was no evidence of pleatitis. No signs were seen within direct examination and the fluid remained sterile on culture.

Within three hours of having a pneumonia the boy repeated second stage. His temperature fell to 100° F. though the symptoms had reached the vascular stage and were accompanied by a marked local inflammatory reaction. Chills (multiple) (intermittent) were now given at a dose of 500 mg. every six hours.

There were no further episodes of vasculopathy and the case went through the usual stages of resolution: pneumonia and finally with fibrinolysis in the vasculature etc. White cell count and differential were within normal limits on 15th May. The second stage was accompanied by a marked secondary fever of 101-102° F. in the eighth month and within days after vaccination with a peak of 104.4° F. on the morning of the 10th May (seven days after vaccination). Thereafter it fell by two and remained normal from the evening of 15th May. The course of lymphopathy of the vasculature was well exemplified by a mild second degree burn above a lung abscess. This happened on the 15th May but it had healed by 18th May, so that the chlamydiae were destroyed.

A small defect in the left eyelid had healed completely by the 10th May, and on 21st when he was sent again to the Ophthalmic Specialist in order to exclude strabismus before the standards of the British.

The Ophthalmic Specialist reported as follows:

- (1) 'Within clinical standards for a normal'
- (2) A marked but probably transient, myopia
- (3) The evidence of vasculopathy resolved

He was discharged in ten days. Hospital Book Letter on 27th May and is now back on full duty. He is being followed up as an out patient by the Ophthalmic Specialist for the necessary with left ocular nerve points.

DISCUSSION

This patient has now had a left external nerve anastomosis performed in the Royal Naval Hospital, Chelsea, for residual left oculomotor nerve palsy. This was followed by a right external nerve anastomosis and he has now been discharged to duty Category P 3.

COMMENT

While being aware of the fallacy of just *hoc ergo propter hoc* reasoning, it is difficult not to accept the illness as being post-vaccinal *chlamydiaemia*. It fulfils the clinical criteria as described in various standard textbooks on all aspects save that of the extensive abscesses of the subcutaneous period. Smith (1973), however, maintains that the onset may be as early as the second day after vaccination.

In order to ensure that the lack of a previous vaccination was not a sufficient evidence of primary vaccination the boy's parents were warned to fix infection. They confirmed that there was had not been vaccinated before joining the Service.

Proved sera were sent on 13th May and 13th June to a local Public Health Laboratory and results of tests showed no serological evidence of recent infection with lymphocytic chlamydiae or any other variant.

No other cases of extensive local inflammatory reactions occurred in the

same batch of New Entrants. They all settled down after a few days on anti-severe treatment and displayed no features of encephalomyelitis. This incidence of local reactions is not unduly high for this establishment, but at the time it was wondered whether the prevailing warm weather was a contributory factor. Coughlin (1951) in his study of 115 cases of post-vaccinal encephalomyelitis occurring in England and Wales between 1927 and 1946 found no evidence of a seasonal incidence. He explained that there may appear to be such a incidence at times when public demand for vaccination increases due to outbreaks of smallpox. This occurred during the second quarters of 1919 and 1929 and so gives a misleading impression of a seasonal incidence for the periods April-November in those two years.

Scrutiny of the figures for H.M.S. Glasgow reveals that there have been no other cases of post-vaccinal encephalomyelitis in the past five years, giving an incidence of 1 in approximately 5,450 vaccinations. The method of vaccination has varied according to the preference of individual Medical Officers. The water carried out the vaccination on 7th May and used the Multiple Pressure Technique as described by Green in the *British Medical Journal* and "Vaccination of the British Encyclopedia of Medical Practice". Twenty procedures were made using a Hagelstein needle, and the same method was used for 125 other New Entrants vaccinated the same afternoon.

Green points out that severe local reactions may be attributable to primary vaccinations with sheep or calf lymph and the same batch of vaccine may give widely differing results depending on the individual reaction and the recipient. He recommends vaccination on calves and, in those cases with severe local reactions, injection of "Eutopen" penicillin, combined with sulphathiazole or streptomycin. As there was no evidence of lung involvement the case reported above received "Desiquinone" penicillin, supplemented later by Chlorotetracycline (Achromycin) with satisfactory results.

No inquiry is made for the birth date in view of Green's (1949) experience with "B.A.F." recruits aged 18 to 25. He has shown that, as outbreaks of smallpox primary vaccination of recruits is ineffective in conferring immunity in less than three weeks, unless a vesicle more than 1 cm. in length or diameter is produced. It is however important in my opinion to have regular inspections (preferably every fortnight) to see the severity of the reaction and this may not always be easy to arrange outside a Service establishment.

Accepting that the wisdom of smallpox vaccination is universally accepted as indeed it must be in these densely exposed to smallpox infection (Green, 1952) quoting the Ministry of Health Reports of the Committee on Vaccination 1929 and 1930s, the case illustrates the need for emphasizing to the public the importance of primary vaccination in early life, when reactions are much less common. In these days of nuclear war travel it is apparent that a person may have been in contact with a case of smallpox in the houses of Hagelstein, and be at large in the houses of Birmingham within a very few days.

The importance of vaccinating great personnel is obvious and in view of

Cox's finding that records of his cases of B.A.F. National Servicemen had never been vaccinated against smallpox, it is very evident that more propaganda is needed if the incidence of post-vaccinal complications is to be maintained at negligible proportions in the future.

Most authorities advise primary vaccination at 2-6 months of age, though recently Wynne Griffiths (1959) speaking at a Symposium on "Immunisation in Childhood" held in London, stated that in Great Britain between 1934 and 1937 the rate of post-vaccinal encephalitis was greater for children below 1 year of age, than for children aged 1-4 years. The Symposium agreed finally to recommend Smallpox Vaccination at "some time during the first five years."

SUMMARY

A case of post-vaccinal encephalomyelitis is described, and comments are made on some of its features.

A plea for primary vaccination during the first five years of life is reiterated.

ACKNOWLEDGMENTS

I am grateful to Surgeon Captain J. C. Goss, Q.H.P. R.N. for permission to publish this case history, and to Surgeon Lieutenant-Commander T. S. Law, R.N., Ophthalmic Specialist, R.M.S. Guyana, for his helpful co-operation.

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ROYAL NAVY MEDICAL CLUB

A Reception and Cocktail Party was held at the Royal College of Surgeons, on Friday, 18th October 1959.

The guests and members were received by Surgeon Vice-Admiral Sir Cyril and Lady May. Among those present were The First Lord and Lady Selkirk, Admiral Sir Charles Lamb, Dame Anne Bytner, Sir James and Lady Paterson Ross, Sir Stamford Child, Miss Helen Moore, Dame Denis Beale MI and Mrs. A. Delmon Wright, Sir Gordon Gordon-Taylor, The Lord Eames, Mr and Mrs A. G. Cross, Sir Harold and Lady Collins, Mr and Mrs J. B. Clitham, Dr W. D. W. Brooke, Mr Lionel Taylor, Surgeon Rear-Admiral and Mrs W. R. S. Penckreffe, Surgeon Rear-Admiral and Mrs G. Phillips, Surgeon Rear-Admiral and Mrs D. M. Isaacs, Surgeon Rear-Admiral W. P. B. Mallett and Surgeon Rear-Admiral (R) and Mrs C. J. Pennington.

ANNUAL DINNER

The next annual dinner of the Naval Medical Club will be held at the Royal Naval College, Greenwich, on Friday 29th April 1960.

THE MEDICAL MESS, ROYAL NAVAL HOSPITAL, HASLAR

Up to the start of the Second World War it was the custom for all Medical Officers joining the Royal Navy to receive their preliminary instruction at the Royal Naval Hospital, Haslar. During this period each officer paid the sum of three guineas to the Medical Mess, and thereby became a Life Member. This custom lapsed during the war, and as a result many Medical Officers have not had the opportunity to become life members of this Mess.

At a recent General Mess Meeting it was decided to revive this privilege, and to encourage all officers who had served at Haslar to apply for Life Membership if they had not already done so. The subscription is to remain at three guineas, the money thus collected being kept solely for the upkeep of the mess trophies and similar items in the Medical Mess. (It should be pointed out that Life Membership does not entitle an Officer to vote at mess elections, or to introduce guests into the Mess.)

All Officers who have served at Haslar are eligible for Life Membership, and it is hoped that many will apply. Any officers wishing to do so should write to the Medical Mess Secretary, Royal Naval Hospital, Haslar and the applications will then be considered at the next General Mess Meeting. The sum of three guineas is payable on delivery.

It was also agreed at the same General Mess Meeting, that all Medical, Dental and Warrant Officer serving in the Portsmouth Command, are Honorary Members of the Medical Mess and are always welcome in the Hospital.

Placed in England; 2) returned to the U.S. Army; 3) returned to England; 4) transferred to the U.S. Navy.

1. Sergeant John J. Under (D.O.B. 1 FEBRUARY 1900) died on the 25 August, 1957, at the age of 57 years. Born on the 17th September 1900, he qualified L. D.S. (King's College Hospital) in 1924 and entered the Royal Naval Medical Service as a Surgeon's Lieutenant (D.O. in January 1925). Promoted Surgeon's Lieutenant-Commander (D.O. in September 1960) he was placed on the Reserve List (D.O. in 1961), with effect from the 1st April, 1960, with the rank of Surgeon's Lieutenant (D.O.).

During World War Two Surgeon's Commander Under served in R.N. College, Greenwich, R.N. Staff, Churchill, Morley and Gibraltar and in H.M. Ships *Albatross*, *Agamemnon* and *Arcton*.

PROMOTIONS

To Surgeon's Lieutenant-Commander: D. E. Mackay (17.9.59), J. D. Watson (14.3.59).

To Surgeon's Lieutenant-Commander (D.O.): J. D. Reeves (17.9.59).

TRANSFERS TO PERMANENT LIST

Surgeon's Lieutenant-Commander: R. J. Hughes.

Surgeon's Lieutenant: D. M. Murray, W. M. McElwain.

Surgeon's Lieutenant (D.O.): G. D. Morris.

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RETIREDENTS

Surgeon-Commander: W. H. Ellis, W. S. Tully.

WARDMASTER OFFICERS

PROMOTIONS

To Wardmaster's Lieutenant-Commander: R. H. Linn, J. A. E. Linn.

To Wardmaster's Lieutenant: W. H. Johnson, P. W. Macdonald.

To Acting Wardmaster (Sub Lieutenant): H. E. Davies.

QUEEN ALBERTA'S ROYAL NAVAL NURSING SERVICE

PROMOTIONS

To Senior Nursing Sister: Misses A. Davies, A. M. Parash, P. H. Johnson.

TRANSFERS TO REGULAR BRANCH COMMISSION

Misses D. M. Cameron, P. Gosses, M. H. Jones, P. G. Morris.

ENTRIES FOR SHORT SERVICE COMMISSION

Misses D. Bennett, J. M. Widdie, D. M. E. Brown, F. B. Collier, H. Correll, M. E. Hayward, M. B. Holden, J. C. Roberts, M. M. Kemp, E. Ricketts, C. S. M. Sutherland, M. B. L. Mann, D. Macdonald, M. E. Widdie, A. Morgan, M. Murphy, C. J. Murray, M. J. Smith, M. J. E. Widdie, H. M. Wright.

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